The Employment dilemma

The future of Work

Orio Giarini
Patrick M. Liedtke

Report to the Club de Rome

THE CLUB OF ROME

Preface

With this introduction, I have the great pleasure and satisfaction of announcing an excellent piece of news: the birth of a new Report to the Club of Rome, with all that such an endeavour entails in terms of commitment, hard work and —above all— expectations.

In these unsettled times, there are surely few questions so capable of arousing the like sensibilities of persons and Institutions as the issue of how best to distribute work, particularly in that facet that touches us all most closely: the future of our younger generations.

Because of the importance of this issue, Bilbao Bizkaia Kutxa and the BBK Foundation decided some time ago to help bring out this new milestone in social and economic thought in order to stimulate debate, insight and further writing on the subject. Our ultimate aim —and the one we all wish most to achieve—is to help lay the groundwork for building a future which, while uncertain, will at least be viewed with less tension and dread.

Reading over the first proofs of this new Report to the Club of Rome, which bears the ambitious title The Employment Dilemma - *The Future of Work*, I thought back to that first report which appeared in 1972. Entitled *The Limits of Growth* and written by Dennis L. Meadows *et al*., that volume caused an enormous stir and eventually sold 12 million copies in 37 different languages. Citing its title reminds me again of the great curiosity it aroused and the surprising influence it had on thinking and decision-making at the time. Now two decades later, we see and judge that book in a new perspective, as will be the case with the present volume. But whether we share the ideas and approaches of the 1996 Report, or disagree with

them wholeheartedly, of one thing we can all be assured. Its authors were, as I had ample occasion to witness, motivated in this undertaking by sheer will and conviction. As is natural, they worked with the total freedom and independence characteristically given to researchers, and credit for the product is therefore due solely to them.

For our part, Bilbao Bizkaia Kutxa and the BBK Foundation have merely had the honour of providing sponsorship, support and funds for the writing of the Report and for its first publication in Spanish. But whatever such aid amounts to, it is little indeed when the aim is to provide support, thought and action in order to combat, overcome and solve that most intolerable of problems: unemployment. We are firmly committed to this cause and hope that these pages will provide keys to solving the problem in the future.

So now, after these words, I leave you with what should prove truly interesting: reading the new Report to the Club of Rome, forming an opinion on it, and working together towards conclusions that will help forge a better future for us all.

Bilbao, October 31, 1996.

On the occasion of the 72nd World Thrift Day

José Ignacio Berroeta

Chairman, Bilbao Bizkaia Kutxa

Introductory Note

Work is essential to the exercise of personal dignity, as it is both a right and a fundamental duty of every citizen. Moreover, work is the main factor involved in the creation of wealth needed to contribute to the development of every society and to peace between all countries. Thus the extraordinary importance of the *employment dilemma* and the *future of work* in a world where everything has become increasingly interconnected, interdependent and complex, and where a vast feeling of uncertainty has pervaded us all.

The Club of Rome has been discussing this issue for many years now, particularly in the wake of a series of talks given by our colleague on the Executive Committee, Orio Giarini, whom we finally asked to head a team entrusted with writing a possible new *Report to the Club of Rome* on the subject.

Thanks to the vision and generosity encountered in Bilbao Bizkaia Kutxa (BBK) from the moment of my first talks with its Chairman, my good and admirable friend Jose Ignacio Berroeta, the writing of this inspiring, thought-provoking book entitled The Employment Dilemma - The Future of Work became possible. The intellectual and organisational collaboration of the BBK was channelled specifically through the Bank's General Manager Manfred Nolte and his team, while the intelligent final draft of the text was the work of Patrick M. Liedtke, an economist specialised in these subjects. To all of them the Club of Rome and I myself owe a very great debt of thanks.

The text reproduced in this volume is an exclusive preview of the definitive Report to the Club of Rome, reserved today for the personal, non-commercial benefit of the many friends and associates of the BBK. It is the text that will be submitted to the Executive Committee of the Club of Rome for

comment and final approval before being translated into numerous languages and made the subject of ample debate throughout the world, beginning with the forthcoming debate at the Club of Rome Conference scheduled to take place in Ponce (Puerto Rico) from November 29th to December 1, 1996.

To the BBK and its management, our very special thanks and sincere recognition. And a word of gratitude as well to all of those who, after reading this text, suggest solutions and undertake specific initiatives to mitigate the scourge of unemployment and joblessness, both structural and circumstantial, thus contributing to the attainment of sustainable human and social development.

Ricardo Diez Hochleitner

President of the Club of Rome

Acknowledgements

The authors would like to thank the Bilbao Bizkaia Kutxa (BBK) for the generous funding of this report and especially BBK's president Don José Ignacio Berroeta Echevarría and the director general Dr. Manfred Nolte Aramburu who got personally very much involved in this project. Additional funding has been received through the Research Programme on the Service Economy as well as the project on the Four Pillars, promoted by the Geneva Association, that allowed to reinforce the documentary basis of the report by including contributions from Ms Oonagh McDonald on economic theory and history and Mr Brian Woodrow on international trade. Likewise, The Peccei Foundation in Rome granted the means for a University assistant, Ms Muriel de Meo, who supplied research work on developing countries.

We are also very grateful for the comments and suggestions provided by so many scholars, academics and practical experts during the course of the preparation of this report that helped to ameliorate our way of presenting the various issues of this report. They include among others Don Ricardo Diez Hochleitner, Mr Eberhard von Koerber, Mr Ruud Lubbers, Mr Samuel Nana-Sinkam, Mr Bertrand Schneider as well as Ms Eleonora Masini, Mr Umberto Colombo and Mr Roberto Peccei.

We furthermore appreciate the support provided by the secretarial staff of the Geneva Association and the services rendered by Mr Bodo Hoffmann who was responsible for the layout and printing of the various draft versions.

[...] Traditionally, one of the principle main tasks of economics was to think of the problem of full employment. Since 1966 approximately, economists have given up this issue; I think that this is a very wrong attitude. It cannot be an insoluble problem. It might be difficult but surely not insoluble.

[...] Our first task is peace. Second is to control that nobody suffers from hunger and third is a substantially full occupation. The fourth, of course, is education.

[...] To be optimistic is our duty. Only from such a stand can we be active and do what is within our possibilities."

Karl Popper:
Extracts from an interview given on 29 July 1994, a few weeks before his death.

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Overview: Points of Controversy

Introduction

Obviously, the future of work and the employment dilemmas are some of the most pressing issues that the world has to face. There are hardly any other questions that are so demanding and challenging in nature while at the same time concerning absolutely every single inhabitant of this planet.

This report to the Club of Rome is neither a study, a compendium nor a commentary on all the initiatives, writings and reports produced by all sorts of private and public organisations around the world on this issue. It rather aims at disclosing some of the weaknesses and shortcomings of present concepts, proposing a different, alternative view of present and future economic activities that will enable us to meet today's and tomorrow's challenges with more adequate insight. The main objective is not to provide final answers that in an ideal world might satisfy everyone under all circumstances. We rather wish to provoke and stimulate economic thinking in a new direction by adopting a different, alternative point of view that will reveal previously hidden aspects opening the path for new approaches and more satisfactory solutions.

We do not think that traditional systems place us in an especially efficient and favourable position due to their limitations and rather narrow focus. We are convinced that the necessity to take on a broader view exists. The following three perceptions reside at the centre of our reflections:

- Work and employment, or more generally productive activities, deal with the creation of a better life on earth for everybody. This is closely interconnected with the creation of wealth.

- The definition of wealth in the contemporary economy needs to be profoundly reconsidered, revised and updated together with the notion of economic value.
- Productive activities and work are intrinsicly connected with human potential and dignity: we are what we produce.

There are moments in human history when practice and theory have to combine in a new way to meet the ever different demands of a changing and developing society. Previously adequate theories and efficient reference systems are continually outdated and have to be either adapted or totally changed. To us, however, a mere adaption of traditional concepts to our present and future situation seems insufficient, we need an entire new set of variables and ideas.

After all, economic theory, as we know it today, is the result and the consequence of the birth and the development of the Industrial Revolution, a very specific historical phenomenon. General social preceptions were adequate in the period of agricultural revolution and the traditional economic theory as initiated by Adam Smith did indeed meet the demands of a modified economic system that chiefly concentrated on manufacturing processes. But today, in a situation where the conditions of the production of wealth have totally changed and where the notion of value has detached itself from the classical Industrial Revolution, practice and traditional theory give the clear impression that they are falling apart. One must, and we try here, to construct a vision that enables us to take the future in this particular fundamental in our hands.

This report does not aim to be an exercise in abstract thinking or detached intellectual virtuosity, on the contrary, the ideas discussed and proposed reflect experiences built up systematically and the boldness of assuming a new point of view

that should further the performance and the efficiency of our economic system. Instead of looking at reality according to traditional theories, we have to understand why the old theories were created, where and why they fail now and then propose a feasible, more efficient alternative.

In the course of this venture it became obvious that established and new visions are rooted in both implicit and explicit philosophies in human culture and are inevitably linked to moral motivations and aspirations. After all, Adam Smith developed the methodology of classical economics out of a moral necessity.

If we really arrive every day closer to the point where policies concerning economic development and employment, based on traditional scrutinising on one or two percent growth of national income, are perceived as being less and less efficient, we hope to mobilise here a process of creation of alternative tools for action in order to restore a vision of the future. In other words, we believe that the future of work and the employment dilemmas are not only a question of how to solve the problems and how to exploit the possibilities offered by reality as we perceive it now, but above all they challenge our capacity to identify the world as it is today in an improved way.

"If a man will begin with certainties, he shall end in doubts; but if he will be content to begin with doubts, he shall end in certainties." We do not pretend with this report, as the quotation of Francis Bacon might suggest, to be infallibly right, but the observations and experiences on which it is based make many of the surging controversial issues plausible. In any social science, consensus is a fundamental part of any successful new vision. We simply hope to stir comments and criticism which will allow society to be better prepared for our future, helping

to solve the employment dilemmas ahead of us. Our certainty resides in the fact that we have tried to supply the best.

Orio Giarini
Patrick M. Liedtke

Points of controversy*

1. The origin

When the first report to the Club of Rome on "The Limits to Growth" appeared in 1972, it caused a great controversy. Over 12 million copies in 37 languages were sold.

In the middle of a period of economic growth unprecedented for the industrialised countries (over 6% per year for the previous 25 years), the appearance of the report was like a thunder-clap beneath blue skies.

Although it predicted that there would be a decline in economic growth 40 years later, the report clearly touched a particular sensitive (and at that time undetectable) nerve of the larger public opinion and of many qualified circles. It had unquestionably come up with something "new". The most vociferous opponents were economists, whose objections where for the most part based on the following ideas:

- Never before in human history had so much scientific and technological research been undertaken. If ever bottlenecks appeared in the economy, human society had an increasing number of tools with which to eliminate any danger of limits to growth.
- The report took no account of modern economic thinking and could be dismissed as non-professional.
- In addition, accepting the idea of limits to growth would have produced social problems making the socio-economic development of society less smooth.
- Whereas the report subsequently found acceptance as one of the founding documents for the present

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* The goal here is to describe and submit the main issues focussing on especially remarkable or controversial topics. These Points of Controversy represent over 35 years professional experience within the chemical industry and several years advisory experience on capital market issues, research on techno-economic issues at the Battelle Institute in Geneva and on economic issues in Germany, teaching on technology and development and subsequently on the Service Economy at the University of Geneva and management of the Risk Project for the Geneva Association. Some of them have already been addressed in previous publications: Giarini, O./ Loubergé, H. (1978): The Diminishing Returns of Technology; Giarini, O. (1980): Dialogue on Wealth and Welfare (Report to the Club of Rome); Giarini, O./ Stahel, W. (1993): The Limits to Certainty (Report to the Club of Rome); and various other books, publications and newsletters (as the PROGRES Newsletters of the Geneva Association).

consciousness of environmental and ecological issues, it was frankly dismissed as a tool for social and economic analysis.

- And yet, it was precisely on these latter points that the report provided an intuitive insight which has since opened the way to a clearer and deeper understanding of economic reality and made economic analysis a more efficient tool for solving key social problems like unemployment.
- In fact, "The Limits to Growth" provided the first warning signal indicating:
  - the growing rigidity of supply which, because it went unrecognised, fuelled a period of disruptive inflation;
  - moving to centre stage the practical implications of the notion of uncertainty and risk management which were no longer merely evidence of imperfect knowledge but rather of a fundamental way of behaving of the human, social and economic system.

1. We are what we produce - the value of work and activity

Never before in history has such an abundance of human and other resources of such quantity and quality be available as now. Such resources are the raw material out of which to build a better future for humanity than was ever conceivable. One obvious measure of this improvement is the increase in life expectancy which, with very few localised exceptions has occured in the vast majority of countries around the world. And yet, poverty and ignorance are still to be found almost anywhere in our world and in some cases are even increasing. This poverty is in part due to new kinds of vulnerability (social, ecological and cultural-political in nature), which the challenge of new opportunities has brought into being. The greatest such challenge is the development of man's ability to mobilize available and emerging resources in a positive way.

A key role in this drama is to be played by the profound and far-reaching renewal of economic thinking, a discipline whose fundamental purpose is the better utilization of resources for the creation of wealth. Our conventional definition of wealth has, however, to be thoroughly reconsidered, altogether reconstructured, if we are to better identify and understand the paths to be followed. Such definition of wealth (of people, of nations and of the earth) serves no mere technocratic goal. Following the great economists of the past, who were also great philosophers and social thinkers, it must be based on adequate philosophical and moral principles and understanding.

It is only through a thorough understanding of what the process of wealth creation in today's world entails that an updated definition of the notion of productive activity can be ar-

rived at. The notion of employment itself, i.e. remunerated work, is only a part, albeit an important part, of what must be understood by “productive activities”.

The employment dilemma is a concept which on the one hand reflects the enormous potential for developing the productive activities we require to enhance the wealth of nations and people the world over, and, on the other, the contradictions arising from an inadequate understanding of the means whereby to produce and benefit from such wealth and potential. In so many cases, the burgeoning sense of insecurity and growing poverty of large sections of the population require us to seek out and find a resolution to this dilemma. This will probably happen through the reconstruction of economic policies which embody a broad view and diversified understanding of realities. It will be a cultural adventure in the deepest and most practical sense of the word.

At the heart of this adventure lies the human capacity to exert an influence on its environment unequalled by any other species on this planet. Our possibilities to command nature and our surroundings are greater than ever before, but they also entail an ever increasing sense of responsibility for the changes that we produce and those that we opt not to generate. Like a knife that can be used to cut bread or murder, the technologies at our disposition cut both ways. The results created through their application are to be measured if we want to determine their beneficence for humanity. Ultimately it is our production in the widest sense, not just the one linked to industrial processes of creating material goods, that defines ourselves: we are what we produce.

1.1. The human capital

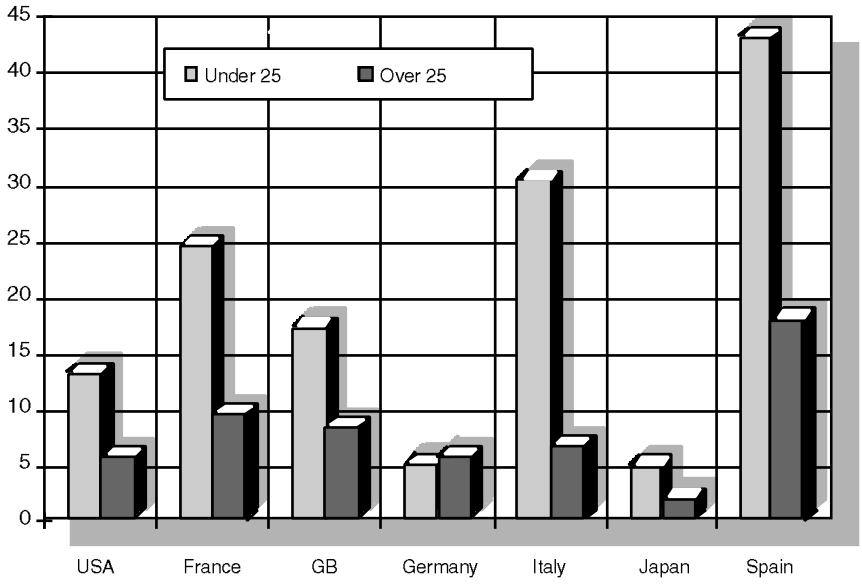
Human capital as the central production factor in any economic theory is the stock of useful and valuable knowledge and skill in a work force, resulting from a process of education and training. It is man's ability to activate other production factors (and we do not want to enter the discussion of how many different production factors there are), performing together in a specific and predetermined way to create a desired result. Upon this human capital, more than on anything else, depends our wealth and the wealth of future generations. It is therefore of utmost importance that the formation of human capital is given the highest priority, since other production factors, especially monetary capital, without adequate human development will produce little or nothing and in some case might even be counterproductive.

The return to investment in human capital is not only the net addition of lifetime earnings that results from selling skilled as opposed to unskilled labour, it is also related to the superior subjective feeling of intellectual well-being, confidence, social recognition etc. It has been estimated that between 50% and 90% of the total capital stock of the United States takes the form of human capital.[1]

In our money-centred economy capital, in the classical sense, is nothing more than a tool to mobilise and stimulate human action and endeavour. But it is not the only tool as the mobilisation of human capital, that is so essential for production, depends on many other factors as well. Most of them are of a

[1] See Becker, G. (1988): Family Economics and Macro Behaviour. In: American Economic Review, 78, Pp. 1-13. And Jorgenson, D./ Frautheni, B. (1987): The Accumulation of Human and Non-Human Capital: 1948-1984..

"soft" nature, like motivation and willingness to perform, that precludes to a large extent their scientific quantification and qualification. To increase the level of wealth of nations means also to stimulate these soft factors. Unfortunately, one has the impression that our modern society does only in rather few cases achieve this goal causing our economy to underperform considerably. Especially the youth appears to be in a weak position as unemployment rates show. In nearly all countries, the unemployment rate of those under 25 years of age is substantially higher than that of adults. This development can lead to a situation of frustration and lack of prospects among the younger generation and ultimately their withdrawal from the labour market, signifying a loss of human capital and depriving society and the individuals of possible future wealth.



Youth unemployment. Source OECD, 1995

Education, and especially formal education, as the basic ingredient in the creation process of human capital is a precondition for future economic development as we have already

seen. But at the same time it is a consequence of previous economic development, since the rise of living standards with continued economic growth and the increasingly complex environment, as much socially as economically, augment the demand for adequate human capital. This implies a necessary process of human capital deepening and widening. In other words, we need more and better educated and trained people to meet the demands of a more complex tomorrow.

1.2. The value of work

The value of work has been perceived differently during the course of human history depending as much on the cultural background of a given society as on the evolutionary stage. It is important to understand the development of the notion of the value of work to properly conceive what it represents in our society today. As we know now, work is more than just the means for creating wealth as the classical economists sustained. It does contain an intrinsic value and expresses to a certain degree the essence of a human being: we are what we produce. Our value in society is determined by the value of our activities, by the value of our work. But what is the value of work?

In order to assess the value of work one first has to define work itself. It is obvious that not every activity of a human being is work. Eating, drinking, sleeping or simply breathing are activities that are necessary to maintain our life-system and cannot be considered work. The same holds true for activities that might be stressful as fast swimming in a lake or participating in an amateur soccer match for fun and distraction. In contrast the (professional) activities of a farmer, a miner or a craftsman are usually considered work.

Hence, the conception of work as we know it today depends on whether or not activities are targeted at the production of scarce goods or services. From an economic point of view work is therefore today usually defined as the sum of human physical and intellectual activities to produce scarce goods and services. Consequently, for today's economists the value of work depends on the capacity to produce scarce goods and services.

We will explain in the following chapters why we think that this definition of work and the concentration on the purely economic aspect of the value of work is inadequate. To this end we will analyse the evolution of work during the ages and how the perception of what was defined as work has changed.

1.2.1. Work as fact and symbol and its value in society

Although everybody seems to know what work is and although there is a broad public consensus about what is to be considered work and what not, we still lack a generally acknowledged definition of this essential human activity. As the different definitions by social scientists and academics demonstrate, the definition of work varies accordingly to the specific approach. An economist will obviously focus on different aspects of work than a philosopher would. Nevertheless, all agree that the phenomenon of work as a contrast to other activities really exists and did exist in the past as well. Therefore work in itself is a fact. It could broadly and as a first approximation to its final definition be described as an arrangement between human beings and their environment with the main objective of self-preservation. The value of work has then to be measured against the success to survive and to preserve the human race. Although useful this definition is still not exact

enough and we will have to take a closer look at the evolution of what was perceived as work during the ages.

From a mythical point of view work was classified as a limited series of archetypal activities. The gods taught man how to work: Athene showed him how to grow olive trees and how to tame animals and hitch them to the wagon. Demeter grew the very first crop and slaughtered a cow. In this way the different gods introduced the ancient activities exerted by man since the dawn of humankind like fishery, the hunt, the art of war etc. This holy initiation of man lead to the understanding that all these activities, that is work, had to be carried out always in the same way just like a ritual.

The perception of work as a ritual lead to the invocation before and the prayer of thanksgiving afterwards. From a mythical pint of view work is the continually renovated and constantly realised manifestation of the divine world order. The human suffering as the result of work becomes intrinsic part of the meaning of life and the value of work is measured against the ability to perform the archetypal actions.

With the appearance of Christianity the notion of work changed. Not only is this religion monotheistic but it also separates man and god by transferring him to the next world. This world, as contrast to the next world, is no longer realm of the mythical gods and life becomes a phase of transition towards paradise. Work is no longer the repetition of god-given activities, instead its trials and tribulations are perceived as the price for the original sin and the consequence of the banishing from paradise. But work is still related to god, since he created the world methodically and according to plan in six days and asked man as his image to imitate this rhythm of six days of work and one day of rest. Work, perceived as physical as well

as mental exertion, becomes atonement and the submission under the will of god.

With Luther and Calvin again changes the notion of work and its value in society. According to Luther work is no longer simple atonement and the strive for physical survival as part of a god-wanted suffering. Instead, it is recognized as the dominant means of moral self-affirmation. Calvin went even further by saying that work is the main purpose of life, finally leading to salvation. Industriousness, diligence and economic success as a result of hard and honest work are virtues pleasing in the sight of god. Calvin gives the "*vita activa*" - the active life - an absolute preference over the "*vita contemplativa*" - the meditative and reflective life. Entrepreneurial activities and undertakings become a real profession and the Calvinistic ideas the centre of a today still notable motivation to work. The essence of what we perceive as today's capitalistic-orientated society resides to a large degree in this Protestant doctrine of work as the source of all values.

1.2.2. The moral aspect

It is obvious that the mythological and Calvinistic approaches to work and its value contain moral aspects, but it has to be noted that these are always in connection with a divine being and have been imposed on humankind by an external force. Up to Kant there has been always this interconnection between a divine being and moral aspects. Kant's doctrine now separates the two and the purely moral aspect of work can be described in short as follows.

Not to fulfil a moral demand is guild. However, a (human) being can only become guilty if it is free. Freedom therefore constitutes a necessary condition for moral. The central formula is: you can, therefore you should. Because of this Kant de-

termined the moral demand as an imperative, bestowed by man upon himself in his freedom and not any longer by a divine being. If it was imposed on him by a divine being, he would no longer be considered free in his actions. With this reasoning Kant severs the interconnection between moral and a divine being and determines moral as the expression of an autonomous human being.

According to this doctrine work loses any sacral meaning that was previously embedded in its value. Work becomes either the natural striving of man in his pursuit of happiness or it becomes an obligation. The obligation to care for himself and the obligation to care for his relatives, but also the obligation to care for the fulfilment of agreements based on work. The value of work is determined by its concordance with the moral demands. These demands are formulated by the human society in complete freedom and can and often do contradict what is economically reasonable. Today's biotechnology, medical experiments with humans, drug trafficking etc. might all economically be reasonable but from a moral point of view not (always and under all circumstances) desirable in our society.

The clash of moral and economic questions shall not and cannot be the purpose of this report, but we should bear in mind that a moral aspect of work and its value exists. It is not up to economists to construct a set of normative moral values that determine what should be and how work should be carried out in our society. But we can analyse whether a given system is able to provide a solid base for work to be in concordance with the normative values.

1.2.3. Work through the ages

In the beginning of the human evolution work consisted mainly in hunting and gathering and related activities like the

slaughter of animals, the tanning of skins, the preparation of tools etc. Work was the continual struggle for survival in a hostile environment that man had no influence upon. It was predominantly the need to eat that conditioned the need to work and the value of work was determined accordingly, depending solely on human labour.

The volume and the intensity of work varied conform with the seasons and the weather. During spring time the different crops had to be planted and in summer and autumn they were harvested. If the weather was fair people could work in the fields, if it was not they had to stay home. The daily work load depended very much on the availability of natural light. The only artificial light source being fire that could not efficiently be used outdoors and only with great danger and to little effect indoors. Consequently, during summer with its longer hours of sunlight farmers worked more than during the winter when the days are shorter.

The productivity of work was essentially a matter of experience. The tools were still rather simple and innovations took a very long time to be assimilated in the production process. The change, for example, from the previous two-field system to a more efficient three-field system started during the 8th century and was even in the 13th century in some parts of Europe not fully completed. This was in part due to the fact that the economy was geographically dispersed and decentralised since most of the needs could be satisfied by the collective itself.

With the introduction of agriculture man had for the first time the means to change his environment to provide him with a better chance of survival. The planned growing and harvesting of crops and fruits changed the way of living and man settled down. Soon he learned how to tame animals and domesticate them. The agricultural society was born. This is

historically as well as analytically an important caesura because the agricultural age constitutes one of the three antipodes of the organisation of a society- the other two being the Industrial Revolution and the Service Economy.

Now the industrial production of goods determined the wealth of nations: the more goods a society could produce the wealthier it became. The efficiency in the production of objects or products was therefore measured by the quantity of units produced per unit of time. Quality concerned essentially the production system and its ability to standardise products with the aim to make them interchangeable. Since the production process was broken down into very small parts, the probability of a successful assembly of all the single parts to form the finished product depended on the capability of reproducing the same objects with as little tolerance as possible.

The cost-benefit ratio of a production was given as the result of a comparison between production costs (ex ante) versus selling price (ex post). The higher this margin the better the ratio. Any manufacturer could either try to decrease the cost of production or try to increase the price of his products to obtain a higher cost-benefit ratio. The decrease of the costs of production could be achieved by making the workers work (at the same daily salary) during longer hours and keep the machines running longer as well.

In the agricultural age the amount and the intensity of work was determined by natural conditions. The disconnection of work and nature via the introduction of production processes that did no longer depend on natural conditions changed the way of working. Artificial gas lighting replaced sunlight and indoor production sites, i.e. factories, became the working place instead of an outdoor field. This made an extreme increase of working time possible. The daily working times of industrial workers in Ger-

many, for example, grew from 10-12 hours around 1800 to 11-14 hours around around 1820 to a peak of 14-16 hours in the years between 1830 and 1860[2]. This increase of working time had a direct influence on the work in other areas as well. Since craftsmen were facing keen competition by the new manufacturing industry they had to increase their working time as well.

At the same time the intensity of work grew as well. Where before most farmers and craftsmen could set their own pace now the new industrial worker had to follow the rhythm of the machine. The more reliable the machines that made up the production chain became, the lesser and the shorter the breaks that workers had during a day.

As the wealth of a society depended on its ability to produce a large amount of goods, economic policies had to aim at stimulating or incentivating industrial investment, i.e. manufacturing, in order to increase this wealth. The final goal of this policy was to achieve full employment of all resources while at the same time avoid inflation.

The Industrial Revolution had an impact on the system of social policies as well. The workers, who organised themselves in trade unions to form a counterweight against the interests of the owner of the production facilities, applied enough pressure to introduce several social benefits. Now, after a period of work that corresponded initially to the average life expectancy, industrial workers had the right to a paid retirement. Furthermore new legislation set the rules for unemployment benefits, health protection and accident protection and evasion measures.

The impact of the Industrial Revolution on society was huge and changed the way of living and the perception of work completely. Today we are at the brink of a new profound

[2] Seifert, E. (1982): Industrielle Arbeitszeiten in Deutschland, p.4.

change of our economy: the transformation of the industrial to a service economy.

1.2.4. Today's technologic and economic considerations

The economy and with it the theory of economics have evolved after and as a consequence of the Industrial Revolution. No longer is employment, i.e. remunerated (monetised[3]) work, the absolute and essential priority for economic development. No longer can unpaid voluntary or benevolent (non-monetised) and self-productive (non-monetarised) work be considered negligible factors of our welfare - and it is arguable whether they could or should have ever been.

Up to now and during the course of the Industrial Revolution monetarised, paid work, mostly in the manufacturing industries, was the key and practically the only fundamental reference for economic development. Even the "traditional" subdivision of the economy in three sectors at the beginning of the Industrial Revolution (agriculture as the previous heart of the economy, manufacturing as the rising segment and services as totally independent and unrelated activities in regard with the former two) is a sign for the concentration on remunerated manufacturing work and the negligence of the service activities that complement products and utilisation systems instead of belonging to an individual and exclusive group of their own.

In the Service Economy, that is less determined by the mere production of goods than by a number of services revolv-

[3] Proponemos la siguiente terminología: «monetarizado» hace referencia a sistemas en los que se produce algún tipo de intercambio ya sea por dinero (monetizado) o no (no monetizado) pero utilizando de forma implícita un sistema de referencia. «No monetarizado» hace referencia a sistemas en los que no se produce ningún tipo de intercambio: básicamente los sistemas de autoproducción. Es absolutamente esencial diferenciar por tanto entre sistemas no monetizados y no monetarizados.

ing around them, we need obviously a different approach. Let us first take a look at the status quo of our economy.

At the end of last century about 40% of the working population in Germany (a typical example for an early industrialised country) was active within the primary sector and about 35% in the secondary sector. The importance of the primary sector has been declining steadily until today less than 5% of the active population is working in the agricultural sector. The secondary sector saw an increase to 45% in 1950 and still remains at this level officially. The tertiary sector covered less than a third of the economy until the 1950s when it started to rise sharply until reaching more than 50% nowadays.[4]

Not only this easily detectable shift of working population away from the first two sectors towards the service sector documents the change of our economy. It is the growing dominance of services also within the other two sectors that highlights the transformation from the age of industrialisation towards the modern Service Economy. Intrasectoral services of the secondary sector are estimated to have doubled from less than 15% of the overall economy in 1950 to 30% in 1990, accounting for more than half of all jobs within the industry. If these figures are added to the traditionally estimated proportion of the service sector it will account for about 80% of the modern economy in terms of job functions. Only a diminishing part of remunerated work, currently 20% in “advanced” countries, is still linked to strictly manufacturing activities.

The services dominate all economic production sectors, that increasingly depend on research and development, quality control, maintenance, financing, insuring, publicity and dis-

[4] Gruhler, W. (1990): Dienstleistungsbestimmter Strukturwandel in deutschen Industrieunternehmen, p. 20.

tribution, customer services, recycling etc. in order to render the best possible results. The value of a product or service is no longer strictly related to its production costs but to its performance over a period of time. The “sell and forget”-mentality of the era of mass production has withered away. The costs of production are now distributed in time from the very first initiatives at the level of research and development up to the moment of waste disposal and elimination after the utilisation of the products or systems.

This process has stimulated the amount of non-remunerated work as the producers of goods and services try to shift part of the work towards the consumer. The consumption of goods and services no longer represents a totally separated activity from the production function. It is always more inserted into this global production system, particularly at the level of distribution and above all utilisation and finally recycling or disposal. The introduction of self-service restaurants, transferring the ordering and disposing process to the individual consumer instead of a waiter, or the substitution of bank clerk attendance by automated teller machines, expecting a higher usage knowledge of the clients, are just two examples. Alvin Toffler has described this phenomenon as the transformation of the consumer to the “prosumer”.

We observe here the reappearance of the value of self-production and self-consumption, that were dismissed by economic thinking in the course of the Industrial Revolution. Precisely because material products have less and less value per se unless they are adequately utilised, the economic value of utilisation and the self-production and self-consumption processes it stimulates require a reintegration of these activities as fully value productive in economic and social terms. Monetarised production is interdependent at a higher degree than ever with the non-monetarised production. The amount of work done for

auto- or self-production intends to increase particularly in relation with the utilisation of complex products, services or systems. As a consequence, these two forms of work became increasingly complementary to the remunerated work in the process of producing “performance value”.

This performance value, describing the new productivity of the Service Economy, is measured as the functioning of a product, system or service during a period of time with a minimum of acquisition, maintenance, operating and disposition cost, possible in-built loss prevention and a maximum of result achievement. The cost-benefit ratio is no longer estimated by comparing production costs versus selling price. The set of costs now comprises the design of a product or system, its manufacturing and distribution, its utilisation and elimination, including partial or total recycling. Whereas the benefits are measured by the performance during the period of utilisation.

It has to be understood that service functions have today absorbed the manufacturing process in a similar way as the industrialisation had started to absorb the agricultural production system 200 years ago. As a direct consequence we have to either adapt our current social and economic theories to the situation that is at our hands or set up a new general social and economic theory that helps us to better understand reality and provides us with the necessary tools to solve the new problems we are facing. Since the changes are so dramatic a mere expansion of current ideas recognized as the “prevailing opinion” will not be sufficient. We need a new understanding of how our environment works to further the work in our environment.

Points of controversy*

2. Productive activity: the stages of economic and social development

(i) The pre-industrial agricultural society

- Domination of agricultural production.
- Work is imposed on the majority by a number of constraints. Little remunerated work, chiefly remunerated in kind. At least 2/3 of the work is done in self-production systems.
- Work productivity is essentially a matter of experience.
- The volume/ intensity of work is conditioned by the seasons and the weather, geographically dispersed and decentralised, integrating the whole family.
- Wealth is based on the control of land and sometimes of trade.

(ii) The Industrial Revolution

- Increasing importance of manufacturing industries, that become the priority for economic strategy aiming at developing the wealth of nations. Basic economic values are referred to material objects, based on exchange value.
- Remunerated work becomes the rule for all activities related to the production of objects or products.
- The efficiency of production is measured by the quantity of units produced per period of time. Quality essentially concerns the production system and standardisation (reproductability of components). Cost-benefit ratio: comparison between production costs (ex ante) versus selling price (ex post).
- Increasing independence of work from natural conditions. Tendency to social and urban concentration.
- Social and economic priority given to remunerated work, other types of activities/ work are considered non-productive, services, even when remunerated, are considered secondary.

(iii) The Service Economy

- Services dominate all economic production sectors. Value is related to the performance of a product or service system over a period of time. The costs of production are distributed from the first initiatives (R&D) up to

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the disposal or elimination of the products or systems.

- Major shift away from manufacturing towards service activities which cover up to 80% of production costs. Increasing forms of non-remunerated work, provided in exchange of other benefits. The amount of work for self-production intends to augment particularly with the utilisation of more complex systems, becoming complementary to the first two in the process of producing perfomrance value.
- Productivity becomes a synonym of quality and performance in time. The cost-benefit ratio takes into consideration R&D, manufacturing, distribution, utilisation and disposal costs, while the benefits are measured by the performance during the period of utilisation.
- The volume of remunerated work in the manufacturing activities diminishes as a consequence of new technologies. Growing importance and complementarity of non-remunerated and self-productive work, particularly during system utilisation as an element of performance optimisation. Trends towards regionalisation and decentralisation.
- Wealth is organised and recognised to be built around a minimum base of remunerated (monetised*) work essential for all. Additional non-remunerated voluntary or benevolent activities and self-productive activities (non-monetised and non-monetarised activities) also contribute to the value of performing systems, despite operating outside the monetised market.

* We propose to use the terminology as follows: «monetarised» refers to systems where some form of exchange has taken place either for money (monetised) or not (non-monetised) but using implicitly a system of reference; «non-monetarised» refers to systems where no exchange at all takes place: basically self-production systems. It is absolutely essential to make a difference therefore between non-monetised and non-monetarised systems.

2. Economic theory and work[5]

Much to the nuisance of most economists it has to be said, that our profession in contrast to other scientists does not really invent anything. We are just trying to understand the same - ever changing but nevertheless the same - reality of human coexistence and interaction within a specific framework on this planet. Our attempts of understanding the true and universal nature of economy are like the arrow in Xenon's paradox that at ever shorter intervals of time will always just half the distance between itself and its target without ever reaching it. However, by expressly choosing this allegory we assert our optimism that this situation of limited understanding might one day come as close to reality as we could wish, in the best tradition of Hegel's dialectic with its never-ending chain of ideas, each one approaching closer to truth.

Until then we have to content ourselves with the knowledge that no theory is definitive. And in fact never will be, for it remains useful only until reality demonstrates its limits and partiality. If we merely wish to walk from Paris to Madrid, the theory that the earth is flat will serve our purposes admirably well. If, however, we wish to take an airplane from London to New York, then the belief that the earth is round would be more than just helpful. With our up to then limited but adequate "knowledge" of a flat earth we would never reach our destination. The same holds true if we wanted to go from earth to another planet when the notion that extraterrestrial space is curved becomes essential.

Every theory suits a particular historical situation well until its shortcomings are demonstrated. At this time a new theo-

[5] Chapter 2 (especially 2.1 through 2.4) will deal in depth with economic theory and is mainly directed to readers with a more prominent interest in these aspects.

ry has to be introduced that expands our knowledge to cover new territories. It is important that when we discover the limits of the present theory we do not succumb to the temptation of "fixing" or "brushing up" the current theory so as to make it suitable by all means. This might preclude the further evolution of our knowledge considerably. Humanity was well able to live with the idea of a geocentric solar system for many centuries. The erroneous perception that the earth was at the centre of the universe seemed to do no harm. But it constrained further developments as many resources had to be wasted to explain why some phenomena did not fit into the Ptolemaic system. Great astronomers went at even greater lengths to elucidate why some stars displayed highly complicated patterns in the sky. Whenever stars or planets were observed not to follow the logic of all things being centred on the earth, specific subset theories were invented to preserve the main theoretical paradigm. Then came Copernicus and Galileo Galilei and triggered a thought process which was to lay all such theories to rest for good.

In the next chapters we will explain why the economic theories of geniuses like Adam Smith, Karl Marx and John Maynard Keynes were great leaps forward in economic understanding. At the same time we will highlight their shortcomings and limitations and explain why we think that a new discussion about our current economic thinking should be triggered. Far from considering ourselves as being anywhere near these geniuses, we just hope to be the curious investigators that with new questions trigger the fall of a grain of sand that might evolve into an avalanche stimulating the geniuses of our time.

2.1. Adam Smith's "Wealth of Nations", David Ricardo and John Stuart Mill

In 1776 the first edition of Adam Smith's "The Wealth of Nations" was published, setting the starting date for an era of economic thinking we now call the classical economics. For the first time the economic ideas of scholastics, physiocrats and mercantilists that already had expressed a number of the most important economic concepts were synthesised into a single coherent system. Adam Smith's talent did neither reside in the originality of his ideas, as he depended on many previous works by other economists like Thomas Mun, William Petty, Richard Cantillon and above all David Hume, nor in their technical brilliance, as he lacked the virtuosity of developing and applying new techniques of economic analysis of other writers. His historic deed was the rare ability to extract the most promising ideas of his time and meld them with great wisdom and judgement into a comprehensive system with an until then unmatched closeness to reality. This system concentrated mainly on the promotion of economic growth and its policies and described the essential functioning of the economy. Smith's focus on economics and its workings lead to the establishment as a specific discipline in its own right and strongly influenced not only contemporary but also later policy-makers. Besides Adam Smith only Karl Marx and John Maynard Keynes have had a similar impact on economic policy with their ideas.

The other two most noteworthy and exceptional disciples of the classical school of economics were David Ricardo with his outstanding publication "Principles" (1817) and John Stuart Mill with his famous work "The Principles of Political Economy" (1848). Both dominated the economic thinking of their times, Ricardo roughly from the 1820s to the 1850s and Mill thereafter until nearly the end of last century. They were united by their favour of free, unregulated markets and maximum in-

dividual freedom, their concern for economic growth, essentially macro-oriented but enriched with cultural, political and social factors, and their notion of supreme market forces. Classical economics is basically the economics of producer capitalism in the wake of the Industrial Revolution. Just as it had been in mercantilism, for the classicists the fundamental economic problem was the determination of how to most efficiently increase the wealth of a nation.

Adam Smith believed that human beings are rational and calculating largely driven by economic self-interest. He also assumed that, for the most part, competitive markets exist, and within these markets the production factors move freely to promote their economic value. Another central assumption was that any arrangement devised by man would be less efficient resolving conflicts than the natural processes at work.

Within this framework the self-interest of every rational individual and his desire to make profit will further the interests of society. The capitalist observes the markets for final goods and produces the commodities that people desire in order to increase revenues. The competition among producers will result in these goods being produced at a cost that will return to the producer an amount just enough to pay the opportunity costs of the various factors of production. If profits are above the normal rate of return in any market, firms will enter these sectors, forcing prices down to a normal level where at the cost of production no excess profits can be obtained. The process of bidding for the various production factors, offering higher prices for the more productive factors, will channel labour and land into those industries where their efficiency is highest. Consumers direct the economy by their choice of consumption that will show in rising and falling prices, and thus rising and falling profits. This process leads to the satisfaction of consumer desires at the lowest possible social cost without any pri-

or planning or governmental intervention. According to Smith, in the long run prices in competitive markets equal the cost of production.

Inquiring into the wealth of nations, Smith states in his opening remarks "*The annual labour of every nation is the fund which originally supplies it with all the necessaries and conve - niencies of life which it annually consumes, and which consist always either in the immediate produce of that labour, or in what is purchased with that produce from other nations.*"[6] Wealth is therefore an annual flow of goods and services and, much in contrast to the earlier conviction of merchantilists, not an accumulated fund of precious metals. His statement also reveals the role of export and import and their interrelatedness as the former are considered to be the financial source for the payments of the later. He also implies that the final purpose of all economic activity is consumption which relies on labour as the main production factor and not land, as the physiocrats maintain.

According to Smith the wealth of a nation depends upon the productivity of labour and the proportion of labourers who are productively employed. The economy will automatically achieve full employment of its resources, hence only the capacity of a nation to produce goods and services is the object of investigation. This capacity is enhanced by the division of labour, whose advantages Smith explains with his famous pin-making example. The division of labour depends upon the accumulation of capital and the extent of the market, i.e. the possibilities to sell more goods and services. It is interesting to see how the prospects of production are limited by the accumulated capital in Smith's theory. As there is a time lag between the

[6] Smith, A. (1776): An Inquiry into the Nature and the Causes of the Wealth of Nations.

beginning and of production and the final sale of the finished product, the labourers need a stock of consumer goods (capital) that maintain them during the time-consuming production process. In a simple economy centred on self-production the division of labour is rather low, the time lag short and very little capital is needed to sustain the labourers during the time of production. With increasing complexity the time lag increases and with it the necessity for a higher capital accumulation.

To provide the means for bridging the gap between production start and the selling of the products is one of the major functions of the capitalist. By diverting more labour from direct production towards the creation of stock, that allows for an increase in productivity, the wealth of a nation can be augmented. The efficient management of stock depends largely on the existence of an efficient exchange system. The monetarisation of the economy during the Industrial Revolution provided such an exchange system, where money could be saved and easily be transformed into capital and vice versa. This capital formation was the key logistical solution to mobilise human resources to develop the modern manufacturing industry. What Smith at first deemed negligible, the capital accumulation in production tools, became increasingly important as the requirements for ever more refined and therefore more expensive production devices grew.

The capitalists provided the necessary capital for production and the labourers the primary production factor labour. Only the combination of these two factors made an increase in productivity and therefore in wealth possible. Whereas in the pre-industrial society, the economic goods where produced essentially through self-production and outside the system of exchange, after and in the course of the Industrial Revolution, the key productive activity became employment in the modern

sense. The priority number one of the economy was to concentrate on remunerated work.

People would engage in the "*toil and trouble*" of working in order to enjoy the "*necessaries, conveniences and amusements of human life*". Smith took it for granted that people will seek to reduce the amount of time and effort they put into their work, so even "*common workmen*" will "*naturally turn their thoughts towards finding easier and readier methods of performing it*". This naturally leads to the invention and improvement of machinery and the division of labour as a natural and necessary process.

The division of labour has the consequences of making people dependent on each other for the "*necessaries and conveniences*" of life in a much more complex society. Through the division of labour, their work becomes more specialised and more skilful, less time-consuming anymore efficient. The benefits from the application of machinery to otherwise labour-intensive tasks stimulates further inventions, and thus increases productivity. The latter is regarded as a benefit to society as a whole, but arises from the cumulative effect of the individual performances of labourers. Curiously enough, although Smith argued that the division of labour meant that workmen became more skilled, he did not regard that as a matter of pride and achievement for the individual concerned, nor yet as part of the individual's self-development. The whole approach is entirely utilitarian.

Smith was at pains to explain how the division of labour arose and found its cause or "*principle*" in the natural interdependence of human beings. The division of labour both originates from and enhances this interdependence, but it would not do so if men relied on each other's benevolence as opposed to their self-interest. Through bargaining and the exchange it

represents, that more and more became remunerated, individuals can require the help they need by engaging in the self-interest of others. The division of labour, therefore, arises from the human tendency to "*truck, barter, and exchange one thing for another*" rather than being "*originally the effect of any hu - man wisdom*". The otherwise isolated individual has to rely on others to supply at least some of his needs, and has to bargain with them to ensure that they do. Thus, the different forms of social interdependence confront the individual as a mere means to his private purposes, as external necessity.

For Smith, the division of labour can only go as far as the market will allow. The division of labour indeed increases productivity, but this results in a surplus since there is obviously a limit to what an individual can or is willing to consume. The surplus will be used in exchange for the labour and goods of other members of the community.

The production of a surplus expands the market and increases the demand for labour to the benefit of even the poorest members of a society. Thus the rich are "*led by an invisible hand to make nearly the same distribution of the necessaries of life, which would have been made, had the earth been divided into equal portions among all its inhabitants, and thus without intending it, without knowing it, advance the interest of soci - ety, and afford means to the multiplication of the species.*"[7] This passage describes the way in which the public and private good work together to augment the wealth of a nation through the expanded market which in turn can be immediately consumed. The creation of wealth depends on work. Work that is increasingly specialised but which is not valued for that reason.

[7] Smith, A. (1776): An Inquiry into the Nature and the Causes of the Wealth of Nations.

Its only value is its exchange value, hence, work becomes synonymous with paid employment.

Smith is not precise on the exchange value of labour and fails to distinguish clearly between relative prices, the general level of prices and changes in welfare. Historians of economic ideas have debated whether he propounded a labour theory of value. He applied a labour theory of value to a primitive economy, but for a modern economy he held to a cost of production theory. According to Smith the general level of prices can best be measured by the price of gold, silver or corn. To explain changes in welfare over time, he formulated a subjective labour disutility theory.

His theory of prices is established first with reference to the price of a particular commodity, explaining in the process the nature of partial equilibrium. The explanation depends on an important assumption: the existence of "*ordinary*" or "*average*" rates of profit, wages and rent in a particular society in a particular year. He distinguishes between the "*natural*" price, which covers the cost of production with an average profit, and the "*market*" price, which depends on fluctuations in supply and demand. These two prices are thought to converge over a period of time. The natural price turns out to be the equilibrium price at which rents, profits and wage rates are at their ordinary or average level.

From this explanation of the "*partial*" equilibrium, Smith turns to the "*general*" equilibrium. It is his explanation of the conditions that have to be satisfied before the economy is in balance or in equilibrium. That will occur when each type of good is sold at its natural rate and each factor of employment is also paid at its natural rate. There is tendency to move resources within or between employments. Where the necessary conditions are not satisfied, they will naturally tend to be re-es-

tablished, as the supply of goods meets demand at the natural price. The same holds true for the price of labour that will return to the natural level of wages. The departure from and reattainment of the state of equilibrium depends on the self-interest, but unplanned actions of producers and consumers. This provides one of the best examples of his emphasis on "*interde - pendence*" and of the "*invisible hand*".

The underlying assumptions of the theory of price are worthy of note. Smith assumes the existence of given ordinary or average rates of wages, profit and rent, rates which hold in a particular society on an annual basis. This indicates that he perceived the economy as a static system, consisting of a given and stable stock of factors together with stable level of aggregate demand for them. It also assumes stable rates of return, which in fact affect the supply prices of commodities and rates over which the individual seller has no control. The state of equilibrium is identified as the price, which is in itself determined by the laws of supply and demand. Price equilibrium was thought to be certain, a goal which could be achieved, provided market information was adequate. Where it was not, the uncertainty which then prevailed would be eliminated by scientific knowledge and progress. The market produces prices where supply and demand meet. It is empirically identified and quantifiable and defines the value of the goods which have been produced. Its value can be expressed in terms of the amount of money it costs to buy it.

Although Smith and his school acknowledged that in the first place prices are determined by the ratio between supply and demand, rising and falling with any variation, they did not make a specific analysis of demand. According to them, demand is of a given magnitude at any moment and may change over time. The later understanding of demand as a schedule, meaning that lower prices would trigger higher demand and

higher prices would restrain it, was still unknown. Putting the laws of supply and demand at the centre of economic theory inevitably put money at the centre of the economy. The value of the goods produced were measured in terms of money, and the labour required to produce the goods. Capital was required, in ways in which it was not required prior to the Industrial Revolution, to facilitate trade and to provide capital for investment in increased and new kinds of production. The banks later played in these activities a key role providing a new and efficient structure for the organisation and allocation of savings and investments thus superseding a more traditional system that relied more heavily on self-financing.[8]

Most of the goods people needed for their daily lives had to be bought as they were no longer produced by virtually self-sufficient families, i.e. production communities, in a society dominated by agriculture. Money came to occupy a pivotal as opposed to a marginal role in the economy. The realisation of the new role of money all too easily lead to the view that only that which had a monetary value had a value. It led to the distinction between productive and non-productive labour in which the former alone contributed to the production of goods for sale and therefore to the wealth of the nation.

The fixation on price as the sole measurement and manifestation of value is somewhat problematic. From Aristotle down through the ages the distinction has been made between two kinds of value: value in use and value in exchange. Value in exchange coincides for classical economists with the natural price. Value in use, according to Smith, is a precondition of exchange value. He observed, however, the later denominated

[8] Para más información sobre el papel de los bancos en la Revolución Industrial véase el análisis de Landes, D. (1969): The Unbound Prometheus. Y también Pressnell, L.S. (1956): Country Banking in the Industrial Revolution.

"economic paradox", that most useful things, such as food or tools, are cheap, while things comparatively less useful, such as diamonds, are expensive. No one will pay a price, i.e. give up something useful (opportunity cost), for an altogether useless thing. There will be exchange value and price as soon as usefulness of any degree is established. The degree of usefulness, however, will not determine price, which is left to the cost of production under pressure of competition. It remained for the subjective theory of value, developed one hundred years later and finally formalized by John Hicks, to resolve the economic paradox by relating the exchange value and price to the degree of value in use. But even then, value was not yet related to the performance of a product over a period of time, including all activities from the level of research to the final disposition.

The writings of John Stuart Mill provide valuable insights into the complexity of this issue. He admits that products have a use value, but at the same time maintains that this use value was incorporated in the market value of products so that there was not any fundamental need anymore to discuss this question any further. This could be taken as a fundamental reference during an economy shaped by the Industrial Revolution where the availability of a product or a system is the essential problem while the performance of such a product or system during its utilisation is perceived as secondary. Only on this rather simple level can the performance be considered as being "*embodied*" in the product. The Service Economy starts at the moment where this previously innate characteristic is disjoined from the product or system itself, that need complementary services during their period of utilisation.

Another problem which Smith and other classical economists like Ricardo did not resolve was employment. Although their primary concern was with economic growth, they offered

no explanation of why the level of employment is as it is. Indeed, they simply assumed that everyone who wanted a job either had one or could get one without difficulty. When Ricardo was challenged by Thomas Malthus' argument that there might be a glut of commodities, which would result in unemployment, he argued that this was impossible and invoked Say's Law of 1803, "supply creates its own demand". But Say's Law fails to take into account what is involved in the notion of supply always finding a market. Say and the classical economists thought that supply would always find a market because poverty was so widespread. They did not understand that demand, and that is solvable demand, had to be created nor could they understand how that could happen, since the phenomena of mass demand and mass consumption was unknown to them. These phenomena did not come into being until the early twentieth century.

It was the view of the classical economists that the processes which bring about the presence of a product in the market will also bring into being the income with which it can be bought. The final price of a particular good equals the cost of the materials and labour together with the manufacturer's profits. The supplier of the raw materials, the manufacturer and the worker together made exactly the right amount of money by manufacturing the product to purchase it. What is true of one company is true of all taken together: enough income is generated to purchase everything that is produced. A glut of goods was simply inconceivable. Even if the capitalist decides to save part of his profits, he does not merely keep it but invests it in new plant and machinery and buildings. Ricardo's claims were probably true at the time, given the undeveloped state of bank lending and the lack of an organised stock exchange to raise capital. Most manufacturers did indeed finance their investment out of their own profits.

Observing the flourishing commerce around him and the birth of many manufacturing activities, Adam Smith wrote his famous book on the wealth of a nation with the desire to fight the widespread poverty amongst his countrymen. He clearly perceived that, despite the fact that the vast majority of the production of goods around him was still based on the traditional agricultural system, what many of his contemporaries still considered a marginal phenomenon was in fact the key and the most dynamic tool to develop the wealth of nations: the manufacturing system based on investment and therefore linked as such to the monetarisation of the economy. He clearly understood where the priority was and on this basis he created the foundation of our modern understanding of the economy. Keeping in mind this priority, a large part of economic literature up to the beginning of this century concentrated on the question of productive employment which was that one essentially linked to a remunerated activity within the frame work of the industrial production system. This was the main road to progress. Everything else and in particular services and all systems of self-production and self-consumption were considered socially legitimate and honourable, but obviously secondary to the main purpose. Money became the king of economy.

2.2. "Karl Marx's "Das Kapital"

As always, the last stages of an intellectual era produce thinkers who deviate from the accepted mainstream doctrines of their time. And though Karl Marx shared most of the assumptions and presuppositions of Smith, Ricardo and Mill, he was the first leading economist to observe that even in the mid-nineteenth century, high unemployment occurred frequently in the newly industrialised countries of Western Europe. This occurrence required an explanation since it should not have been

possible under the classical system for people to unwillingly become unemployed.

The classical economists had insisted that the natural order of capitalism, once firmly established, would grow and develop but cannot and must not be changed. Marx opposed to this conservative approach his revolutionary theory[9] that society is subject to a law of historical transformation. In accordance with it, those forces that have brought an order into being strive to stabilise it by oppressing the further development of new forces threatening to undermine it, until these finally assert themselves and realise their aspirations. Anyone who understands this law of transformation must therefore join the new forces, so that the deadlock may be broken and the path cleared to fundamental, revolutionary social change for the better of humanity.

Marx believes the ultimate motive for social changes to be economic. The quest for better living conditions is an essential impulse of man, that overrides all other interests in case of conflict. The logic of gradual economic development and of progress in the methods and the organisation of production is at the basis of all historical change. In the preface to his "Critique of Political Economy" (1859) he explains in a very explicit way the Marxian theory of history: *"In the social production which men carry on they enter into definite relations that are indispensable and independent of their will; these relations of production correspond to a definite stage of development of their material powers of production. The sum total of these relations of production constitutes the economic structure of so -*

[9] As it often happens in history, many "revolutionary" ideas that have been taken up by progressive thinkers were already discovered by less radical ones. E.g. the Marxist's iron law of salaries had been also treated by the Swiss Necker when he was a minister of the King of France during the Revolution in 1792. It is chiefly the ability of new thinkers to provide a good and well

ciety - the real foundation, on which rise legal and political su - perstructures and to which correspond definite forms of social consciousness. The mode of production in material life deter - mines the general character of the social, political, and spiritu - al processes of life. It is not the consciousness of men that de - termines their existence, but, on the contrary, their social existence determines their consciousness. At a certain stage of their development, the material forces of production in society come in conflict with the existing relations of production, or - what is but a legal expression for the same thing - which the property relations within which they had been at work before. From forms of development of the forces of production these relations turn into their fetters. Then comes the period of social revolution. With a change of the economic foundation the en - tire immense superstructure is more or less rapidly trans - formed."[10]

According to Marx, all, except classless, societies can be divided analytically into two parts: the forces of production and the relations of production. The forces of production are the technology used by the society to produce material goods, manifested in capital goods, tools, scientific knowledge and labour skills. These forces are inherently dynamic. In contrast, the relations of production are basically static, and this characteristic is reinforced by the social superstructure whose function is precisely the preservation of the status quo. All social and cultural forms accepted by society pertain to the superstructure and keep intact the relations of production. These relations are the rules that govern the process. There are social relations, i.e. between people, and property relations, i.e. between people and objects. The treatment of the problem of eco-

[10] Marx, K. (1913): A Contribution to the Critique of the Political Economy. Trans. from the 2nd German ed. by Stone, N.I. Pp 11-12.

nomic order is essential to the possibilities of production. The historically determined relations of production provide the institutional framework within which the economic decisions are made.[11]

Marx follows the dialectic tradition of Hegel by assuming that the static relations of production are the thesis and the dynamic forces of production are the antithesis. After an initial period of harmony between the two, discrepancies and contradictions emerge within the system. The current relations of production, i.e. social and economic institutions, are no longer compatible to the forces of production, i.e. the technology. As these disparities, the famous class struggle, intensify, they culminate in a period of social revolution. After that a new set of rules will emerge, determining anew the relations of production so that they are in concordance with the existing forces of production. The new relations of production correspond to Hegel's synthesis, arising from the conflict between thesis, the previous relations of production, and antithesis, the forces of production. The ensuing period of harmony will then again be disturbed by the changing and the evolution of new forces that will promote new contradictions. And so the process starts all over again.

Every system carries the seeds of its own destruction within itself. Marx traces the development of society from feudalism to capitalism and its further development, as predicted, into socialism and finally into communism. Only then will human coexistence have reached the ultimate state of stability where no

[11] We do not wish to enter here into the discussion on how institutions are set up, what their roles are in society and how their existence affects (economic) decisions. For an extensive discussion on the role of institutions in different societies and whether they play a rather aggravating or mediating role in conflicts please refer to Berger, Peter (1996): Normative Conflicts - The Frontiers of Social Cohesion. Proposed Report to the Club of Rome by the Bertelsmann Foundation, forthcoming.

further conflicts will arise. Capitalism, the result of the clash between feudalism and the change of productions forces, triggered mainly by the beginning of manufacturing and increased trade, is doomed because it no longer befits the new forces of production.

In the best tradition of Ricardian economics, Marx began his analysis of the economy by examining the price of commodities. However, unlike Ricardo, he was not so much interested in explaining the forces that determine commodity prices but in the ones that determine wages. The wage question was fundamental since it disclosed the exchange relationship between the two different groups of society: the capitalists who own the means of production and the proletariat who sell only their labour in the market. Marx view the separation of labour from the ownership of the means of production as the chief element of capitalism. The theory of prices was only insofar interesting to him as it represented the social relationship between the two central groups of society. The quantitative link between commodities, i.e. how much corn in exchange for one loaf of bread, was of only secondary importance.

Prior to capitalist economies the producer produced commodities for his own consumption. Human goods were produced primarily for their use value. Under a capitalist system these goods were no longer produced for their use but for their exchange value. The exchange relationship between the owners of commodities, especially between those of production means and labour, the capitalists and the proletariat respectively, has to be understood to comprehend the system of capitalism.

In his economic work, Marx used the classifications developed by Ricardo, although giving Ricardo's doctrine an altogether new direction. The interpretation of labour-value the-

ory as a tool of socialist criticism as already established, did not satisfy Marx. He opened "Das Kapital" (1867; first English edition "Capital" in 1883) with the famous deduction of the capitalist law of exploitation from the general law of the exchange of equal labour values developed by the classical economists. The paradox of capitalism resides in the existence of unearned profit in a world of equivalent exchange. A commodity is defined as an exchangeable good. To be exchangeable it must be useful, i.e. possess use value, and must be the product of socially necessary labour power. Any unnecessary, superfluous input of labour cannot be added to the value of the commodity. The value of a commodity is therefore the cumulation of all socially necessary labour used in its creation. However, the products of past labour add to the value of the new product only what they have previously cost. There is no further surplus value to be obtained from them in the production process.

Marx distinguishes between constant capital and variable capital. *"That part of capital then, which is represented by the means of production, by the raw material, auxiliary material and the instruments of labour, does not, in the process of production, undergo any quantitative alteration of value. I therefore call it [...] constant capital. On the other hand, that part of capital, represented by the labour-power, does, in the process of production, undergo an alteration of value. It both reproduces the equivalent of its own value, and also produces an excess, a surplus-value [...] being transformed from a constant into a variable magnitude. I therefore call it [...] variable capital."*[12]

Necessary labour is what the capitalist has to put out in wages and is equivalent to the labour necessary to produce the

[12] Marx, K. (1869): Das Kapital.

needs of the workman and his family. Surplus labour is that performed by the workman in the remainder of his working time and is identical with surplus value. The ratio of surplus labour to total labour is the operative relationship and according to Marx constantly falling as a result of the advance of technology. He envisions a future where the technical basis of modern industry is revolutionary: *"In the first place, in the form of machinery, the implements of labour become automatic, things moving and working independent of the workman. They are hence forth an industrial perpetuum mobile, that would go on producing forever, did it not meet with certain natural obstructions in the weak bodies and the strong wills of its human attendants. The automaton, as capital, and because it is capital, is endowed, in the person of the capitalist, with intelligence and will; it is therefore animated by the longing to reduce to a minimum the resistance offered by that repellent yet elastic natural barrier, man."*[13]

At the same time as the constant capital rises, this increase leads to a fall in the rate of profit. The change in the technical composition of capital prescribes an increasing amount of constant capital per employed worker. This results in the concentration of the means of production in manufacturing on a vast scale. The competition between older and newer capital will cause a growing accumulation and concentration, transforming *"many small in to few large capitals"*. If the capitalists fail to invest they will no longer be able to produce goods efficiently and be forced out of the market. However, labour-saving machines that allow for increased efficiency causes a fall in employment and as a consequence a fall in wages and profits. This is because the value of what is produced depends on the number of man-hours spent in producing it. The fall in profits

[13] Marx, K. (1869): Das Kapital.

causes many businesses to become bankrupt, investment in plant and machinery declines and more workers lose their jobs. The slump is under way, and will only come to an end when large forms buy up the production means of the bankrupt firms. They will then be able to produce goods at prices people can afford. Of course, Marx took the view that any such up-turn was a temporary respite, since increasing monopolisation and the lack of opportunities or the necessity for investment would lead to a glut of goods. Workers would not be able to create demand since their wages would remain at subsistence level. This would lead finally to the point where the old capitalistic system, that no longer served society right, would be destroyed, by means of a revolution, to give way to the new socialism and later communism.

It is the Marxian version of the law of a falling rate of profit that will lead to the final crisis of the capitalist system. A law that was previously regarded as an important element in the classical doctrine. Smith had explained it simply as the result of the fact that capital accumulates faster than the population increases. Ricardo and Mill had derived it from the more general law of diminishing returns. But for Marx it is the trigger and the demonstration for the ensuing self-destruction of capitalism where production and employment break down for the lack of profit. There would not be in his view a new cycle due to the introductions of superior technology that could stimulate profits.

Nevertheless, it has to be noted that this law is based on the assumption of a constant rate of exploitation. What escaped Marx is that this assumption implies that wages rise with the rising productivity of labour. However, such a rise in wages is contrary to Marx's assumption that they are determined by, and kept down to, the exchange value of labour power, the minimum standard of living. His labour value concept obscures the

fact that different quantities of the product correspond to the same amount of labour in various conditions of productivity. For the Marxian labour theory, they still appear as equal quantities of labour value.

If productivity rises and the amount of wages remain the same, i.e. equal to the exchange value of labour power, the labour value of the wage diminishes and the rate of exploitation increases. Under such conditions, a reduction in the rate of profit is no longer necessarily deducible. What happens is simply that the capital employed is used to exploit relatively fewer workers more intensively.

Even if Marx's doctrine is not entirely free of contradictions and erroneous concepts, his, and his collaborator Engel's, observations of the real world reveal an astonishing insight into the nature of things. They realised that the Industrial Revolution had brought about a enormous increase in the surplus value generated in the world. And Marx raises the legitimate question of how to distribute the socially produced surplus among participants in society. He declared the present distribution to be unfair and claimed that the surplus created by labour was taken from it because of its lack of ownership of the means of production. Only the ultimate revolution would correctly return the surplus value to its creators, the proletariat, by expropriating the capitalists and redistributing the means of production.

It is interesting to note that, in the context of economic analysis, the previously established system of models in the deterministic tradition of Newton's world as autonomous, closed, self-regulating universe, running according to predetermined laws, culminating in a static equilibrium, was somewhat undermined. Marx and Engel alluded to the indeterminism of economic relations, their instability, equilibrium occurring by chance as the various variables lurched on their erratic way.

And even if their basic framework required a very strict deterministic logic within the definition of its workings, they noticed that the underlying processes presumed an inherent disproportion which had continuously, and in the extremes violently, to be evened out. Unfortunately, neither Marx nor his colleague Engel followed this hint at indeterminism nor did they apply indeterministic ideas about the development of economic systems (even if the outcome of the evolution, the ultimate collapse of capitalism and ensuing communism, was determined, the path was not) to their explanation of high unemployment. The unprecedented notion that society's capacity to produce would outstrip its capacity to consume, due to a lack of demand, was still firmly part of the classical tradition in that it emphasised the decisive role of supply. Nevertheless, there was already a glimpse of indeterminism in Marxist economic theory. And it is indeterminism that will finally lead us to a theory of uncertainty as the basis of all economic action.[14]

2.3. John Maynard Keynes' "The General Theory of Employment, Interest and Money"

All great philosophers and economic thinkers are children of their time, with their ideas being the synthesis of past experiences, the command of the moment and some spark of genius. This is especially true for John Maynard Keynes, who described himself *"as a faithful pupil of the classical school who did not [...] (in 1923) doubt what he had been taught"*.[15] He lived through the economic crisis of 1929 that was originated essentially by the explosive development in producing goods.

[14] See also Giarini, O. (1989): The Limits to Certainty.

[15] Keynes, J.M. (1936): The General Theory of Employment, Interest and Money.

Society entered the new era of mass production and mass consumption and at that stage was not ready for it. Common sense was then telling that people were living in a world of scarcity and that only small minorities could benefit of a large and wide consumption pattern. The elasticity of supply had constantly been underestimated since the beginning of the Industrial Revolution. The result has been that overproduction could not find a market. Therefore, prices fell at the moment of the down-turn of the economic cycle, factories had to close and employment had to diminish because of inadequate demand. In fact it was a solvable problem of consumption residing entirely in the monetarised part of the economy.

The answers of the renown economists of that time to the prominent problem of unemployment, however, proved inadequate. In the best tradition of classical economy they maintained that unemployment would be reduced if workers would only relinquish part of their, anyway much too high, wages. So in 1932 Edwin Cannan, distinguished professor of economics at the London School of Economics, remarked that the world *"should learn to submit to declines of money-income without squealing."*[16] Is not this exactly what some of our contemporaries are telling us today? That we should accept a decline in our standard of living, because there is no conservative solution at hand? Keynes was facing the same kind of problem in his time: the economy was slumping and no one had a convincing explanation for it. If it was not the height of wages, it was *"interventionism, and monetary uncertainty, which are responsible for the persistence of the slump."*[17] Someone had to

[16] Cannan, E. (1932) in his presidential address to the Royal Economic Society. As in: Economic Journal (1932). Pp. 357-369.

[17] Robbins, L. (1935): The Twofold Roots of the Great Depression: Inflationism and Intervention. In: Hutton, G. (1935): The Burden of Plenty. Pp. 105-106.

deal with the real cause of it all: the lack of demand. And Keynes, already established as a great economist of his time, was up to it, presenting his argument in “The General Theory of Employment, Interest and Money” (1936).

We will summarise the most important points. The model is using only a few variables that describe the functioning of the economy and account for the phenomenon of unemployment in a system of equilibrium. First, there is effective demand that not the demand to which people can give effect because they have the resources to acquire what they want. It is rather the demand in anticipation of which entrepreneurs offer today’s employment and which they believe will come into effect for the products that they decide to produce today. It could also be termed future demand as it is the anticipation of what gives effect to today’s employment. From that the producer can derive the marginal efficiency of capital, i.e. the rate of return that he is likely to obtain for producing just one more unit. This requires an expansion of investment that is only as long advisable as the rate of interest at which the expansion occurs is less than the marginal efficiency of capital. Or in other words, an entrepreneur will only then extend his investment if the expected return of the extension is higher than its cost, i.e. the rate of interest. Through this mechanism any deviation of the rate of interest will affect investment, rising rates of interest will trigger contraction, falling expansion.

Investment means the addition to the value of capital emanating from the productive activity of the examined period, including the value of stocks. Consumption is the value of goods sold to consumers during the relevant period. Income is the sum of the payment for the production factors and the profits of the entrepreneurs, representing the total value of output. It is equal to the sum of consumption and investment. As saving is the part of income not spent on consumption, it must ex

definitionem be equal to the amount of investment in every period. This is the famous identity between saving and investment that lies at the heart of Keynesian economics. Other economists and even Keynes in his earlier work "Treatise on Money" (1930) had assumed that they might differ - not any longer.

The proportion of national income spent on consumption depends on a number of factors, including the distribution of income between the various social groups, the distribution between profits and wages and changes in the level of national income as a whole, and other historical and institutional factors. The distribution between profits and wages is important, because a higher proportion of the former is spent on consumption. In the short run, the proportion spent on consumption varies in accordance with the trade cycle. This means that increased expenditure lags behind the up-turn so that the proportion spent on consumption temporarily falls. During the down-turn, though, it rises, as adjustments to spending patterns fail to respond immediately to the fall in income. Keynes, however, took a long-term view, and assumed that a country's expenditure on consumption was a high and relatively stable proportion of its income.

The second element in effective demand, investment, is determined by the expected rate of return on investment and the cost of borrowing money, required to finance the investment. The former consideration depends partly on the amount of capital already in existence and the extent of its use. That much was already accepted, but Keynes introduced the concept of expectations, investment decisions did not only depend on an assessment of the current state of the economy, or on anticipated short-term profits, but also on the expectations businessmen had about the future of the economy, and especially the likelihood of a recession. The cost of borrowing, which businessmen inevitably take into account, in turn depends on

the preference people have for holding money rather than interest-bearing assets, the liquidity preference, and the quantity of money which the Central Bank decides to create. The level of investment will be determined by the interaction of all these forces.

The General Theory rests on the view that the level of consumption together with the level of investment determines the total output or the total income of the economy. Total consumption and total income are mutually dependent variables, and the explanation for each being at the level it is depends entirely and exclusively on the concept of equilibrium. Keynes sought to show how savings and investment can be brought into equilibrium to each other. This can only happen if desired savings and investment are equal to each other, with the amount that businessmen want to invest being equal to the amount families want to save. If families' consumption decisions are out of line with businessmen's investment decisions, then there will be a level of output which does not require the whole labour force to produce, resulting in unemployment. That will persist until there is some change in either consumption or investment, and it is the latter which represents the most likely change element in the economy, and which is therefore the easiest element to influence, since patterns of saving and consumption are relatively stable.

What Keynes rejected was the deeply held assumption of the classical economists that the natural level of employment was full employment. There is no reason, on examination of the economic system, to conclude that a certain level of consumption and investment will bring forward just enough output to require full employment. Consumption and investment could quite easily impose too many demands on the economy, leading to inflation, or too few demands, thus leading to unemployment. There is no good reason, and classical economists

never provided one, for assuming that the sum total of millions of individual decisions to save or consume would add up to just enough demand to ensure full employment. That will only happen when desired savings and desired investment are in equilibrium with each other, as opposed to actual savings and actual investment being equal with each other.

Keynes argued that the reason why the economic system was not self-correcting and that an equilibrium characterised by full employment was not restored, as the classical economists theorised, was because of their over-simple views of the behaviour of interest rates. They thought that a fall in investment would lead to a fall in interest rates to such an extent that full employment would return. But interest rate movements are much more complicated than this.

The activities of the bear speculators on the stock exchange would prevent interest rates from falling far enough to stimulate enough investment to ensure full employment. The initial fall in investment or consumption would lead to a rapid decline in income and a further fall in investment or consumption. This is called the multiplier effect. The system was not an automatically self-stabilising one: initial deviations in full employment were not corrected by changes in interest rates. On the contrary, they were worsened by movements in income. Just because the fall in employment would not be automatically corrected by other changes in the economy, Keynes concluded that the government and the monetary authorities should intervene to correct the downward spiral leading to recession.

Keynes assumed sufficient elasticity on the demand side to stimulate and regulate the economy up to the so-called full employment of labour. It was only in the 1920s and 1930s that economic theory as well as economic practice recognized a

new role for the State, as Keynes suggested when he said that *"The central controls necessary to ensure full employment will, of course, involve a large extension of the traditional functions of government."*[18] But government could increase the capacity of demand to buy, and create therefore what was called a situation of full employment of resources, including human resources. This was made easier by the development of mass consumption, which began in the 1930s.

Although Keynes' model has some flaws, Ohlin pointed out that it ignored the really interesting difference between ex post (realised) and ex ante (planned) saving and investment;[19] the problematic assumption that a rise in nominal wages would automatically cause a fall in real wages;[20] or the erroneous perception that consumer behaviour was always predictable etc.; it nevertheless guided the capitalist world out of the Great Depression. The General Theory had the huge advantage of not only singling out the main and most central of problems of the time, the lack of demand, it also prescribed remedies that were not only obvious, but popular and pleasant as well. Roosevelt was no longer breaking the rules of the game when he implemented his New Deal by rising pay instead of cutting it, by spending public money instead of saving it. Keynes had developed an elaborate theory that met the needs of his time. It justified on one side government intervention for investments in times of economic slump and on the other side social policies, like the legislation of trade unions, that would reinforce demand.

[18] Keynes, J.M. (1936): The General Theory of Employment, Interest and Money.

[19] See Ohlin, B. (1937): Some Notes on the Stockholm Theory of Savings and Investment. In: Economic Journal, no. II and III 1937.

[20] See Dunlop, J.T. (1938): The Movement of Real and Money Wage Rates. In: Economic Journal, no. 191. P. 421.

2.4. Neoclassical economics: supply or demand

2.4.1. The neoclassical approach to economics and the switch to demand

As we have already seen, during 150 years economic theory was dominated by the idea of scarcity and by the necessity to stimulate production. This is the reason why classical economists focused on the supply-side of the economy and pondered about production aspects. In consequence they devised a system where these two issues lay at its very centre. According to this approach, demand, as a possible disruptive factor, was of no importance and had not to be dealt with. This manifests itself clearly in the famous law of the French economist Jean-Baptiste Say: "supply creates its own demand".

During this period, the economic crisis, with the exception of periods of war, were linked to overproduction and to real deflation. The notion of scarcity and the difficulty to fight against it virtually since the beginning of time had made it difficult to believe in the efficiency of the industrial process. It was only in the 1920s that for several reasons, but specifically due to the industrial manufacturing process entering the era of mass consumption, that economics started to assume that supply was indefinitely elastic, thanks in particular to the enormous technological and scientific progress. At this point, the notion of value switched, essentially through the works of Keynes and Hicks, to the demand side, inverting Say's Law to "demand creates its own supply". It appeared as if the concentration on (solvable, monetised) demand, that had lain for a century and a half at the core of most economic crisis of overproduction, could be the ultimate solution. Even today the new neoclassical schools are conditioned by this perception and the

underlying paradigm, regardless whether they refer to themselves as being supply-siders.

However, this was not the only current that lead earlier economists abandon their previous enchantment with supply. Closely related to the question of supply and production aspects for the classical economists was the theory of value and especially the value of labour, which manifested itself in the appearance of a distinct labour theory. Adam Smith delighted us with his example of the beaver and the deer, Ricardo went in pursuit of an absolute value as a reference system and Marx elaborated his theory of relative prices and labour power. However, according to Joan Robinson, with neoclassics *"the labour theory, with its disagreeable smell, had been swept out and utility came in."*[21] Now economists also ruminated about the concept of utility and its meaning for the economic processes. Robinson maintains that *"utility is the quality in commodities that makes individuals want to buy them, and the fact that individuals want to buy commodities shows that they have utility."*[22] As a consequence, in the minds of many economists, commodities should therefore command a price that is supposed to be the measure for their marginal utility. Later this concept was discharged in favour of "revealed preferences" and "observable market behaviour". Accordingly, the reference within the economic system was no longer the producer but the consumer. And so, this shift away from value theory towards the concepts of utility and preferences also induced the replacement of supply-oriented economics by a demand-based approach. A replacement that still haunts us today in many ways.

[21] Robinson, J. (1976): Economic Philosophy. P. 48.

[22] Robinson, J. (1976): Economic Philosophy. P. 48.

2.4.2. The methodology of neoclassical economics

Neoclassical economics is strongly linked to three great thinkers: the English W. Stanley Jevons, the Austrian Carl Menger and above all the Swiss Léon Walras. They devised independently of each other what would be the groundwork for modern economics. Whereas classical economists neglected demand and had no notion of its possible variability, they introduced an analysis that could merge and synthesise both, demand and cost elements, into a general framework. The key element of their theory is utility, the judgement of how consumers behave according to their preferences and how the expression of these preferences are transformed into the demand for goods.

It was the introduction of the concept of marginal utility that provided the missing link in an otherwise perceived as complete theory of the market mechanism. Walrasian economics was the culmination of the new movement's first phase as he discovered how to analyse the economy as a whole: the markets for labour, land and products had to be in simultaneous general equilibrium. This notion of a general equilibrium will haunt us still today as many economists tend to believe that it is the ultimate goal for any theory to explain reality in and as a state of equilibrium and certainty.

Whereas the classical economists emphasised the importance of scarce land in economic growth, the new neoclassical position took a different view as the prediction of ever scarcer land was not fulfilled. The dominant forces in determining economic growth became the accumulation of capital, a phenomenon we have also analysed in the chapter on Marx, and the development and application of new technologies. The neoclassical growth model is an abstract of reality where two types of input, namely capital and labour, produce only one single

homogeneous output. Capital in this context is any durable produced good that is used in the production process to produce another good.

Let us take a closer look on the working of the neoclassical system. The goal of neoclassicism or "supply-side" economics was to increase real output relative to demand, whilst recognising that demand is based on utility. This approach also rests on the assumption that the economy left to itself, stabilises at full employment, or what the neoclassicists choose to regard as full employment. Agents, that is businessmen, workers, households, optimise their actions as homo economicus meaning that they take rational decisions about the course of action open to them and follow these decisions through consistently. Markets clear in the sense that all prices including the price of labour take rational action in that all prices, including the price of labour, adjust in such a way as to equate supply and demand. There is therefore no possibility of an excess demand for, or excess supply of, any commodity or factor of production, including labour.

Since the economy is self-stabilising, the government's role is a neutral one, as any intervention on its part will inevitably be destabilising. In terms of fiscal policy the government should either balance its budget or maintain a stable relationship between the budget balance and the GDP, as well as maintaining a neutral monetary policy. It has to be a neutral policy, because the amount of money held in cash or bank deposits has a fixed relation to income. If money supply is increased by central government, economic agents will transfer some of the excess to financial assets, goods or services in order to resume their preferred ratio of money to income. Other assets, such as property or consumer durables, are seen as acceptable substitutes for money. Thus the increase in money

supply leads to an increase in GDP, but in terms of prices not output.

The argument that the rise in money supply cannot lead to an increase in output turns out to rest on the belief that the economic equilibrium is one of the full use of resources and hence a maximum output. The neoclassicists rejected Keynes's view that the only substitute for money is financial assets, and that therefore an increase in money supply only affects the GDP indirectly by reducing interest rates, which may influence the level of investment and possibly consumption. Increasing money supply increases inflation not employment. The economy is self-stabilising at full employment, by which is meant, to use Milton Friedman's phrase, the *"natural rate of unemployment".*

The labour market works like any other market in that it is controlled by the laws of supply and demand brought into balance by a price mechanism. The intersection of the supply and demand curves determines the real wage rate and the level of employment. This is identified as full employment, since everyone who wants to be employed at the real rate established by the market, is employed. Any remaining unemployment is voluntary, involuntary unemployment does not exist. At the natural rate of unemployment, and only at that rate, inflation is stable and probably zero. It is stable in these circumstances, because the actual inflation rate is equal to the expected inflation rate.

If the government attempts to reduce unemployment below its natural rate by increasing effective demand through cutting taxes, increasing public expenditure, or bringing down interest rates so that the demand for goods and services increases and the demand for labour increases as well, this will lead to a rise in money wage rates. This will be interpreted as a rise in

real wages, given the expectation that the zero inflation rate will continue.

Once inflation starts to rise, as a result of government action, then real money wages begin to fall, and workers conclude that there is no point in retaining their jobs. Unemployment begins to rise again, but inflation continues to rise, because wage rates have risen. This is because, neoclassicists believe, the law of diminishing returns to scale applies. As output rises, unit costs rise, and prices have to rise as well, if profit margins are to be maintained. Inflation does not fall, because economic agents expect inflation to rise, and take such rational expectations into account in making their decisions.

The government cannot effectively influence the real variables, such as output, employment and unemployment in the long run. In terms of macroeconomic policy, governments should limit their activities to balancing their own budgets and ensuring that the money supply remains stable over time. The economy will then settle down to the natural rate of unemployment, growth will occur at whatever level is possible through increases in productivity and the labour force, and inflation will be stable. If this leaves the natural rate of unemployment at unacceptably high levels, then the government's only course of action is to reduce the natural rate itself, which can only be achieved by supply-side measures, essentially those which are designed to free up the labour market by making it more flexible. These measures have typically included tax cuts, and a reduction in social security benefits reducing the effectiveness of collective bargaining and the rigidities in the labour market arising from trade union power, and increasing geographical and occupational mobility.

According to this model based on capital accumulation and labour, the economic growth can be stimulated through

capital deepening. Capital deepening is the process by which the accumulated capital per employed worker increases over time. This is supposed to augment the productivity, thus rendering a higher output with the same amount of labour. In the process of capital deepening for a given level of technology, the growing investment into means of production tend to diminish the return on capital, i.e. the real rate of interest. This is due to the fact, that the most highly productive investments are made first, only to be followed by a series of ever less productive investments.

Interestingly enough, labour in this theory is determined as much by forces outside the economy as by forces from within. The wages, however, are entirely determined within the system, as they will rise as a consequence of the process of capital deepening. This is a direct result of the fact that workers that have more capital to work with tend to exhibit higher marginal products. Since the competitive wages rise along with the marginal output of labour, capital deepening and the wage level are proportional to each other. In the long run we might arrive at a steady state where the process of capital deepening has terminated, real wages are constant and the interest rates have reached stability. This stagnation of economic growth might arrive with high wages, but precludes any further improvements in incomes and output.

This phase of stagnation is according to the theory overcome by the introduction of new technologies through invention and innovation. They provide the impulse for reaching a higher level of economic activity, with the same bundle of inputs producing more or improved output. Hence, science and technology are perceived as the ultimate guarantors for an unlimited elasticity of supply.

2.4.3. The inquiries of J.R. Hicks into some principles of economic theory

Another famous economist who left his mark in economic history and advanced the discipline was J.R. Hicks, who was always on the look-out for the application of new methods of analysis to many disputed questions in economics. In his work on *"Value and Capital"*[23] he constructed in 1939 a general theory of the workings of interrelated markets, based mainly upon the theories of general equilibrium as proposed by Walras, Pareto and the so-called Austrians, which he tried to extend and develop further. The results of his inquiries were then applied to the problems of capital and interest, money in general and employment. Especially distinguished are his workings on the subjective theory of value and the effort to construct a system of economic dynamics.

Hicks was especially intrigued with the works of Alfred Marshall who in his pioneering work gave a fundamental impulse to research on demand in economic history. Marshall helped to open the breach through which numerous attempts have been made to find a new basic concept of value. This concept of value should replace or at least complement the classical notion.[24] Consequently, Hicks starts his book on *"Value and Capital"* in part I *"The Theory of Subjective Value"* with a reference to Marshall: *"The pure theory of consumer's demand, which occupied a good deal of the attention of Marshall and his contemporaries [...] is no doubt admirable, but it is remarkable that it has remained so long upon such an unquestioned*

[23] Hicks, J.R. (1939): Value and Capital - An Inquiry into some Fundamental Principles of Economic Theory.

[24] For a more detailed discussion of Marshall in this context also refer to: Giarini, O. (1980): Dialogue on Wealth and Welfare.

eminence."[25] He questions the approaches of Marshall and Pareto and terms total and marginal utility as arbitrary. What at first starts out as an analysis of the consumer's choice among consumption goods ends as a theory of economic choice in general. From this he deduces the laws of market conduct, laws that deal with the reaction of the consumer to changes in market conditions. He maintains that when market conditions change, the consumer moves from one point of equilibrium to another point of equilibrium.

Although Hicks perceives the generally static nature of economics in his times as too restricted and tries in consequence to introduce *"the foundations of dynamic economics"* by devoting an entire section of his book to this topic, he falls short of really understanding the elements of uncertainty that lie at the heart of any economy. The Hicksian dynamics depend still on discrete-time systems where one state of equilibrium passes on to another one at definite points in time in a sequential mode, i.e. no feedbacks in time are possible and allowed. This limitation has to be overcome in order to ameliorate the system so as to be able to integrate the elements of uncertainty and unlimited dynamism in the systemic, cybernetic sense of the word, where all action is continuously modified by its effects and where all elements have different behaviour (inertia) in time. We will come back later to this in more detail in our chapter "2.5. The dismissing of determinism".

[25] Hicks, J.R. (1939): Value and Capital - An Inquiry into some Fundamental Principles of Economic Theory. P. 11.

2.4.4. An opening to supply by neoclassical economists

As we have already observed in the preceeding chapters, the neo-classical school of economics is still essentially based on and conditioned by the priority of demand. This, however, has blurred our image of economic reality and made it very difficult to perceive correctly the key changes which have taken place in the macro-economic and global economic level as well as the micro-economic level concerning the structure of supply or production.

In order to recognise and appreciate what the Service Economy really is, it is therefore absolutely necessary to start from the supply side. But it is also very important to distinguish our analysis from that of the American school of supply siders. The latter have ideologically grown out of specific schools of economic thought in the United States that at the beginning were linked to the subjective notion of value and to the more conservative schools, and fundamentally remain so to this day.

The American school of supply siders have become rather well-known due to their providing a basis of thinking and action for politicians like Ronald Reagan and Margaret Thatcher (whose economic policies we will shortly discuss later on). In fact, these supply siders have only very marginally to do with our analysis: They generally do not make an inquiry on the modifying way in which wealth and welfare is produced. Their major goal is to redevelop economic growth following the traditional economic paradigms as if the economy was still based essentially on a pure manufacturing logic. In general they do think that, if such a gowth cannot be achieved, it is because of negative social attitudes and imbalances (the rigidity of the labour market for instance) or because of the excessive weight of the fiscal system as a disincentive against entrepreneurship.

One cannot dismiss these issues, but we have to note the following:

- If the general elasticity of supply were as great as it was 30 or 40 years ago, any rigidity of the type described could be easily overcome by applying the traditional measures for stimulating the economy. The adoption of any such measures in the recent past has lead to soaring budget deficits and a rather negative impact on the economnic performance of those countries who tried to solve their problems in this way. As a consequence, such rigidities of supply should first be conceived in a relative framework.

- The major economic goal is to create wealth and welfare and not to stimulate the growth of a rather limited and not always with wealth and welfare correlated type of measurement which we call GDP. A more general perception of wealth and welfare is therefore necessary and the adapting of these notions and their definition to the condition of production in the modern Service Economy. American supply siders have most of the time a purely conservative attitude and dismiss any general discussion about the nature and the goal of creating wealth.

- Our priority is to enhance human capacity to produce wealth for himself and for society as a priority which of course can be in contradiction with other economic constraints.

What is fundamentally blocking the American school of supply siders, unless they are simply politically committed, is the lack of a different and more general approach to economic reality and a modified way of analysis that would help them to overcome the limitations and the contradictions of their own

system. It seems that the last school with a great renown of supply siders in classical economics and true dedication to the supply side of the economic system may have been the Marxists. What is today denominated the modern or neoclassical supply-side economics – as the transformation of the neoclassical model of our economy into applied fiscal policy – is nevertheless not a really supply-side approach. It became especially fashionable during the Reagan (USA) and Thatcher (GB) administrations in the 1980s, where it was deemed to be the remedy for the staggering economies.

The new policy concentrated again on supply as the dominant factor of long-term economic growth and stability, or so it said. The role of demand management, through tax cuts or expenditure increase whenever unemployment rose and the tightening of monetary or fiscal policy in times of higher inflation, diminished. The typical supply-sider would favour large tax cuts to revive the economy and increase productivity growth and introduce incentives for people to work and to save.

The cutting of taxes should affect aggregate demand and output through the multiplier effect to a much lesser extent than was previously maintained by Keynesian economists. High taxes, in the supply-sider's view, lead people to reduce their labour and capital supply. This culminated in Arthur Laffer's suggestion that high tax rates might actually lower tax revenues as the increased marginal gain is more than offset by the loss of the average payment. Theoretically sound, this was a major misperception of economic reality since the large tax cuts lead to a sharp fall in tax revenues and a soaring budget deficit.

Incentives also played a key role in this neoclassical supply-side economics. Its followers stress the loss of incentives

that happens when taxes rates are too high. They accuse the Keynesian system of neglecting the impact of tax rates and incentives on aggregate supply by focusing only on the demand side of the economy. The idea is to raise the after-tax rewards to growth stimulating activities such as labour, saving and investment relative to leisure and consumption. A tax reduction on labour, interest or dividends should increase saving, investment and economic growth.

In general the new supply-side economics was a retreat from Keynesian economics, where aggregate demand determines output and employment and where monetary and fiscal policies should be used to combat unemployment and inflation. The turn towards the renewed concepts of the classical economists with their enchantment with the supply-side of the economy gave greater emphasis to factors that would stimulate the growth in potential output. Macroeconomic policies concentrated more on long-term economic growth than on short-term economic stabilisation.

Nevertheless, the new emphasis on incentives was mainly restricted to the tax system, not comprehending other domains, and the tax cuts, mainly leading to an increase in the budget deficit, were more a stimulation of demand than of supply. Since the major impact on economic growth of supply-side tax cuts is, at least in the short term, through its impact on aggregate demand rather than on potential output and aggregate supply, some economists have argued that the neoclassical supply-side economics of the 1980s was closer to a demand-oriented policy than to a supply-side policy.

The goal of this report in this context is to open the door in order to facilitate a re-discussion in depth of the role of production, which is the only way to really find more consistent solutions to the employment dilemmas.

Points of controversy

3. The rigidity of supply (bottlenecks in the productionsytem)

Since the beginning of the Industrial Revolution at the end of the 19th century, right up to the beginning of our own, economic crisis were for the most part identified with a period of deflation (except in wartime). Real deflation meant in fact that, in many European countries, for instance, the cost of a kilo of bread in monetary terms in the 1820s was higher than it was at the end of the century.

Confronted with widespread poverty and the necessity to develop the wealth of nations, for classical economists the first priority was the expansion of production. The trouble was that needing goods and services was not enough to absorb production. Those needs would have to be expressed in monetary terms. On the supply or production side, the Industrial Revolution could only be developed through a system of remuneration of capital and labour based on the availability of money. If there was not sufficient money on the demand side, factories could not sell their products and went bankrupt. Hence, the real deflationary cycles.

These fundamental shortcomings of classical economics were finally overcome by the neoclassical economics schools which from the 1920s and 1930s onwards began to focus their attention on the role of demand and consumption.

During the two World Wars, and especially during the period immediately following World War II, it became clear that scientific and technological progress could guarantee sufficient elasticity of supply or production as to fit into any economic policy based on demand. Managing demand was for a while the key issue making it possible to promote improved allocation of all human and material resources, so as constantly to increase the wealth of nations, measured in terms of gross national income.

At the beginning of the 70s, however, economists and all those involved in economic development were caught off guard: creeping inflation was giving way to higher and higher inflation rates.

Whereas the economy was expected to be managed on the demand side, something had happened on the production or

supply side – thanks to the progress of technology – which created a new form of rigidity.

Two basic phenomena had surfaced: on the one hand, the diminishing returns of technology and, on the other, the fundamental role of services, not so much as a sector but as a series of functions totally modifying the manufacturing system.

2.5. The dismissing of determinism

2.5.1. Determinism, the pricing system and uncertainty

The visions of economic geniuses of the realities of production and consumption have helped in a powerful way to create the modern world where, despite all the terrible crisis and setbacks of this period of history, a substantial step forward has been made for the well-being of its inhabitants. The moral ambitions of Adam Smith and his successors have proved illuminating for creating and distributing those basic material products, food, shelter, clothing etc., which with time have revolutionised in a deepest sense human history and lead to an impressive increase of life expectancy and general health. Nevertheless, we are facing a situation where economic reality calls for new concepts, not just a fine-tuning of old ideas. Economist's darling, positivistic prognostic, with its proclamation of a trend, the extrapolation into the future and the ensuing deduction of possible actions, will definitely be unable to meet tomorrow's requirements and cannot fulfil the hopes of many traditional economists who believe in it as a cure-all remedy. We have to adapt to world where the only certain thing about

our future is its uncertainty. We have to dismiss the enchanting concept of determinism to free our minds of the bondage that it creates. It is necessary to expand our horizons, not only in terms of accepting uncertainty as a special case of some selected parts of the economy like the introduction of game-theory to explain behavioural patterns but as an inherent element of our lifes and all actions. In consequence, we should not aim for overcoming uncertainty as if it was just a one-dimensional problem, hoping for the ultimate formula to emerge that would describe the general equilibrium which would be so easy to manage. Only the fall of the general equilibrium as the reference point for our economic theories will open up the path to new concepts that will provide a better picture of reality and supply new and improved answers to the central questions of economy. In this context we are not only referring to an uncertainty of the first degree where the possible alternatives are known and only the chances of their occurrence are unknown but to uncertainty of the second degree where even the possible events cannot be foreseen.

The historical value of equilibrium theory in economics relates to the fact that one of the essential features of the Industrial Revolution has been the monetarisation of the economy as a tool for solving the logistic problems of exploiting ever higher levels of technology. however, giving the notion of price equilibrium universal significance and a kind of definitive scientific validity is much more a matter of believe or even ideology than part of any truly scientific approach. The notion of equilibrium is not really a concept or explanation but rather a tautology, i. e. something that is right because it is right. It has been given the value or status of an axiom, those basic self-evident truths used by mathematics for developing subsequent logical deductions. Understanding this notion of equilibrium, where supply is equal to demand. is essential, because it ex-

plains why economic theory has from the beginning always tended to be one sided. The notion of economic equilibrium, as the key preoccupation of classical economists in reducing scarcity or of their neoclassical successors in defining the behaviour of consumers, has engendered such attitudes as: "if supply and demand are of necessity equal, once we have clearly understood one part of the equation, we have also - ex definitionem - defined the other side". This is tantamount to a contradiction in terms. This oversimplification has caused classical economists for l50 years to fail to understand that demand had to be expanded to cope with deflationary economic crises. It also has, more recently, prevented neoclassical economists, concerned essentially with demand mechanisms, from getting to grips with the problems of current rigidities of supply.

The concept of a general equilibrium in an instant in time is also linked to 19th century's quest for certainty. In a positivistic and scientific culture certainty is equated with scientific evidence: as long as our comprehension of a given situation falls short of total certainty, then, says the ideology, we have not yet achieved the final perfect understanding. But this should be only a matter of time, since sooner or later perfect certainty will be ours and with it the awareness of the ultimate equilibrium. But the theory of a perfect and fundamentally timeless equilibrium is in reality "certain" only because of a pre-established tautology. It has thus become the premise for a system of thought and analysis which views the world as a place of "contingent" imperfection. But imperfections and disequilibria are not "contingent", they are the permanent hallmarks of development and of dynamic reality.

Over the last couple of decades. the imperfections of general equilibrium have been closely scrutinised by a large number of economists. The notions of incomplete and of asymmetric information have entered the jargon of economic theory and

analysis, in recognition of the many obstacles to achieving a perfect equilibrium. But these notions are still used as if a perfect equilibrium could ever be achieved. The utopia of the scientists and positivists is still there to suggest that we can increase the level of information on market functioning to such a point, that perfect equilibrium will one day be achieved. This reasoning simply shows that the notions of time of the pre-Einstein era, the idea of isolating instant modems of time outside reality, are still with us. Once we enter real time, uncertainty and disequilibrium become the reference criteria of reality. Introducing the notion of real time into the economics of supply and demand (in modern terms, service-based production and consumption) is a radical alternative to the view of the economic process as being based on timeless (instant) equilibrium.

Accepting time-duration, i.e. real time, implies that any decision to produce is inevitably taken in a situation of (greater or lesser) uncertainty as regards the moment in time when the product will be available to the market. In this dynamic view of the economic process, it is recognized that any decision to produce is taken ex-ante of the traditional moment of economic equilibrium, and that any price definition is always ex-post.

The moment in time when the price is fixed in the market is only a part, a sub-system, of a wider economic system. In the succession of decisions over time, from production to distribution, and from the Point-of-Sale further on to utilisation-based activities and the recycling or disposal of waste, the market function of fixing a price is an important event in the process, but only one element in a greater economic system. And in this greater economic system, uncertainty is not an instance of "imperfection". but a given fact, containing incompressible risk components. Any economic activity or endeavour is based on some unknown and uncertain factors or possibilities, simply because its objective lies in the future.

Once we have accepted the dimension of real use, we can attempt to make any future event as probable as possible, but we cannot control it with absolute certainty because we cannot control future time - except by eliminating life. In nature as well as in economic systems, many competitive and often redundant production processes are continuously emerging, only some of which will ever reach the point-of-sale and/or the moment of utilisation. Successful modern technologies are only a small part of all technologies, many of which have failed in spite of the money invested in them. One successful product on the market provides a source of compensation in a strategy based on many initiatives, a great number of which will fail. It is at this point that the role of demand, distinct in time from production, acquires a dimension and an importance which makes it an essential part of the economic system, or indeed of any living system.

Points of controversy

4. Economic and social value, the pricing system, uncertainty and risk

Classical and neoclassical economics are based on a notion of value built into an "equilibrium system". Prices are supposed to represent the equilibrium point between supply and demand at a given point in time. At that point, all prices together represent the general equilibrium system.

While classical economics underlined the importance of the supply-side in this equation, the neoclassical school emphasized the priority of demand. But in either cases, reference to the equilibrium system was identical: one side of the equation being by definition considered equal to the other.

It is here that the notion of performance as measurement of value as well as the increasing importance of service functions in the economic system neceesitate a fundamental change in approach. Indeed, the notion of performance cannot be identified with a point in time but must refer to a period of time. Now, the very period during which the system is utilised is of necessity uncertain and can be expressed only as a probability. In the second place, the functioning of such a system

will also occur within a context of events, some of which are bound to be uncertain. All future costs, linked to performance, can be understood – even when they are strictly monetarized – only in terms of probability.

Therefore, the economic system which the Service Economy is introducing to is an economic system that is by definition uncertain. In classical economics, uncertainty is equated with inadequate, insufficient or asymmetric information, as if such information could ever be obtained completely. In the case of the Service Economy and the notion of performance value, uncertainty, and more generally disequilibrium as a condition to the development and dynamic systems, is a key factor.

Given the functioning of a very large number of economic activities in today's world, it is clear that any price set at a given moment merely represents a probability which will be confronted with costs arising in the future and which cannot be precisely determined.

This has always been the case for the activity of the insurance industry and also explains why this discipline has largely been overlooked by both classical and neoclassical economic theory as taught in universities around the world today.

It is indeed paradoxical that increasingly the price fixing mechanism of all sorts of activities is beginning to resemble the probabilistic one that faces an insurance manager. This is true for example for a research manager having to choose investment in different projects with varying probabilities of success. This applies to all investments or mechanisms having to do with the leasing of any kind of material and also to any type of production process likely to face unknown future costs related to waste management, pollution and other liabilities. It is another paradox of history that insurance, neglected particularly by economic thinking for the last two centuries, is becoming centre stage in much the same way as the textile industry symbolised practical application of the new methods of industrial production in the 18th century.

All of this points clearly to the fact that the equilibrium system of classical and neoclassical economic theory is based on a deterministic philosophy which the hard sciences abandoned at the beginning of this century. The notion of price uncertainty and disequilibrium is rooted in the philosophy linked to undeterministic systems which for many decades have indicated the way forward in physics and other hard sciences. This means also that the notion of risk, within an undeterministic framework, is not the equivalent of threat but of opportunity.

2.5.2. Risk management, vulnerability and volatility

The notion of risk management, as well as the risk management function and professional activity, was first introduced in the United States about 40 years ago. It was the consequence of the growing vulnerability in the performance of modern technologies utilised in the production system.

With time, it became obvious that the success of technology in the modern economic system had increased the necessity to control vulnerabilities for very clear economic reasons. First, because specialisation has been reducing and at the same time multiplying the classes of risks and their homogeneity. Whereas in the past only a limited number of different risks had to be faced, the new situation confronted the economy with more specific and varied potential hazards due to the new production reality. In addition, technology has become increasingly reliable, with the positive effect that accidents are occurring less and less often. Nevertheless, due to the increasingly complex and interrelated technological systems employed today, in the always more improbable case of a breakdown, the consequences are reaching ever higher levels of gravity in absolute as well as in relative terms.

These risks have nothing to do with entrepreneurial, commercial or financial risks, since they depend on the surrounding environment and they occur outside the will of any economic or social actor. They simply reflect the vulnerability of a system. But because of their gravity, they have become with time more and more strategically important for the contemporary industrial world even if this type of risk is almost totally dismissed in economic textbooks. The profession of risk management therefore developed not only in the United States but also in the rest of the world as a practical reaction to the changing constraints in the economic system.

A second important change intervened in the 1970s when, due to the modification in the way to produce wealth and the new rigidities of supply, the nominal rate of economic growth in the industrialised countries started to decline. The notion of vulnerability therefore extended to the social systems, and the welfare state in general. It is from this analysis that we can open the door to reconsider adequate social policies in the future understanding the changing conditions of economic development, for the increase of the wealth of nations and for the coping with risks and vulnerabilities.

1973 was not only the year of the first oil crisis but also the year when the international monetary authorities decided to abandon the fixed exchange-rate system. At the same time, inflation started soaring after a period of lower, creeping inflation. The mainstream economic community took some time to recognise that inflation was in fact a structural and not simply a cyclical problem. As a consequence, the central banks and the monetary authorities took time to come to the conclusion that it was essential to reduce inflation to a minimum in order to avoid the economy going wildly astray.

But for many years, it was not recognised that something fundamentally new had occurred in the economy and so, for a while, the dominant policy of many governments during the 1970s was to accept and even stimulate deficits and to rely on a future “normal” recovery (a historically rather exceptional 6% GDP growth per year was expected to return for good) to re-establish some sort of equilibrium. This never happened and all the major turmoils experienced in the industrialised countries during the 1970s and into the 1980s are largely due to this misjudgement.

In the meantime, the basic constituents of monetary uncertainty like inflation rates, interest rates, exchange rates etc.

started to modify the nature of the banking system and to a large extent of the functioning of industrial companies. The latter began to realise that the abrupt modifications in monetary conditions were in many cases having more impact on the profitability of their activities, than their main industrial performance.

The banks and the other financial institutions, following in industry's footsteps, were soon to begin talking about risk management, modifying fundamentally the role and conception they had of their own business and becoming involved in managing monetary risks as well as starting to work on their own investment programmes. The development of derivatives and other systems was the consequence of this situation. We are currently in the middle of this other gigantic wave in the global revolution of the economics of uncertainty and risk management, as a key feature of the global Service Economy.

The concept itself of risk management has become common also for the financial community and for the development of the wealth of nations, it is now clear that it is a strategy for managing risks which is the key issue in order to develop the wealth of nations in all directions and sectors of activity.

2.6. The role of "demand"

Demand is rather a selection mechanism in an inevitably asymmetric system. In economic and in biological reality, an enormous number of uncertain acts of production are constantly occurring before being selected by demand. There is an enormous difference between a process whose purpose is equilibrium (supply and demand) and one in which demand has a selection function and not an equilibrium function.

A similar attitude is adopted by Karl Popper in his refutation of induction and his defence of empiricism: "*There is no induction: we never argue from facts to theories, unless by way of refutation or "falsification". This view of science can be selective, as, for example, with Darwin's theory. By contrast, the theories of method which assert that we proceed by induction stressing verification (rather than falsification) are typically Lamarckian: they stress instruction by the environment, rather than selection.*"[26]

As we have already seen, both classical and neoclassical theories are deterministic theories, based on a Newtonian model implying fixed discoverable laws. The only difference is that the first theory emphasised the supply-side until an excess of supply and lack of demand forced a revolution in thinking. The economic crises of the Industrial Revolution were crises of real deflation, because the need for demand, which could be met by appropriate levels of production, was underestimated.

That all changed when the devastating effects of the 1929 stock market crash led Keynes to introduce the notion of effective demand, and in so doing to reject the contemporary view that full employment would be maintained or restored after the down-swing of the trade cycle by some self-operating mechanism. Full employment is not simply the normal state of affairs, maintained by the flexibility of wages or interest rates. He argued that the level of employment is itself a variable, determined by certain causal factors. He accepted that, in the short run, the level of employment is determined by the level of output. If the latter is high, the firm will employ more workers than if it is running at a low level. Output depends on effective demand, that is, demand backed by actual expenditure, whether consumption or investment. Keynes therefore turned his atten-

[26] Popper, K. (1977): Unended Quest. P. 86.

tion to what determines the level of consumption and the level of investment in order to understand what determines the level of employment.

The emphasis placed by John Hicks on the notion of demand and especially his introduction of the notion of the subjective theory of value was a valuable counterbalance to the centrality of supply and labour, taken over from the classical economists, in Marx's economic theories and the Marxist economics. It enabled the free-marketeers to defend the notion of a free market by their reliance on a demand-side concept of value.

With the neoclassical economic doctrine the labour theory was lain to rest and the focus was placed on utility. Utility is termed as the quality in commodities that would stimulate individuals to buy them as Joan Robinson described it. Alfred Marshall maintains that utility is taken to be the correlative to desire or want. The key to economic development then is to encourage growth, and enable individuals to purchase the goods which have "utility" without causing inflation. During the 1970s, productivity growth declined sharply, leaving governments with worsening trade-offs between inflation and unemployment. Attempts to handle these problems along Keynesian lines led to both rising inflation and unemployment. Increasing demand whilst neglecting incentives to produce merely increased stagflation, as the value of incentives was eroded. The goal of neoclassicism or neoclassical supply-side economics then was to increase real output relative to demand, whilst recognising that demand is based on utility.

As we have seen in the previous chapters, there is nothing new about supply-side economics: indeed, it is what Adam Smith's "Wealth of Nations" is all about. But economic development should no longer be seen as a matter of manipulating supply and demand in order to reach the goal of price equilib-

rium. Both the Keynesian demand management and the supply-side economics of the neoclassicist fail because they assume that economic theory must conform to a determinist model of scientific laws if it is to be taken seriously. The difference between the two is that classical economics looked to "supply" as the key to interpreting and predicting economic development, whereas the neoclassical economists take the view, that once demand is properly understood, the supply of goods will be there to meet the demand.

An entirely new approach to understanding the complexity of production and the role of labour in production is required since neither supply nor demand taken by themselves can provide sufficient explanations of economic development. In particular, it will mean abandoning the notion that the supply of goods can be increased through the application of technology in such a way that the price can be reduced or held at levels which most people can afford, thereby maintaining a sufficient level of demand to ensure continuing economic development. That view, as we have seen, depends on a misapplication of allegedly scientific principles to economic theory, but also on a failure to appreciate the limits of technology.

If current neoclassical demand-based economics view demand as giving instructions to the economy on how to do things, it provides evidence of the extent to which a fundamentally deterministic philosophy still permeates the social sciences, and economics in particular. By contrast, even if a process of selection can provide some hints and information as to its future operation, such hints will in practice always remain a hypothesis which can only be verified empirically later, by the facts. But at the same time, an area of uncertainty will always persist because of the fundamental impossibility of forecasting a fully predictable environment if real time, evolution and dynamics are accepted as the attributes of real life.

It must be stressed and repeated again that we are now in a dynamic situation in which a static, equilibrium theory of economics cannot help to solve our major problems. Our hypothesis is that of a situation in which economic equilibrium theories are too incomplete to be really efficient. They therefore have to be reconstructed to incorporate more problems and less incomplete hypotheses. This precludes the possibility of simply renaming to the older economic thinking that stresses the importance of supply. Time dimension gives a much broader meaning to the production function than it had in classical economics, and it also underlines the essential complementary role of demand. "Disequilibrium" theory requires a proper in-depth understanding of both demand and supply, and at different levels.

Whereas priority in economic theories could in the past swing from supply to demand, considered individually and separately as workable instruments, we now not only need to reassess the importance of the supply-side, but also the fact that the selection function of demand is an absolute necessity, a complement to the production function. By analogy with the quotation from Karl Popper, we could say that an economic system is obliged to produce on the basis of hypothesis (and may be even of dreams or of any other process stimulating action and initiative). This is the first essential step. But the demand process must also be as efficient as possible in its selective function (and must include criteria on how best to use material and human resources, and how best to reflect societal values).

All this of course does not mean that demand is totally unpredictable when production decisions are taken, but even the best market research studies in the modern economy always involve an incompressible level of approximation. We must accept that no certainty exists, but at the same time any approximation is better than no approximation at all. We have to live with an in-

evitable degree of uncertainty, which in itself provides the margin for improvement, modification, new ideas and progress.

In spite of appearing difficult at times, the selection function of demand is nonetheless essential. Production without control by selection can proliferate to the point of destroying the entire system. Cancer is a biological form of uncontrolled self-production with inefficient selection. Demand is efficient because of its ability to select. Deterministic philosophy which aspires to perfectly defined demand in advance, to preregulated production, is unnatural, can only be inefficient, and becomes a source of destruction of material and human resources. Deterministic ambition can only survive through its "imperfections". The greater the imperfections, the better it is.

Over time, demand must determine whether in reality available productions are useful. Sometimes, after initial feverish success (as with computer games for example), it may fade out very quickly. In other cases, the fact that this selection mechanism exists at all guarantees a striving for a better quality of production. Mozart produced his operas among hundreds of other contemporary composers. His work was the essential precondition, but subsequently demand has selected him and every time we listen to his music on the radio or in concert, it continues to select him.

In the new Service Economy, where utilisation value implies taking into account real time, demand fulfils an essential role complementary to production. It is no longer a matter of concentrating on either the supply- or the demand-side, as within the framework of general equilibrium theory, but on the economy as a whole. Accepting uncertainty means that we have again halved the distance between our economic understanding and reality, just like the arrow in Xenon's paradox.

Points of controversy

5. The importance of demand in the contemporary Service Economy

Any proper analyse of changes in the process in which the wealth of nations is produced in the modern economy, must first have carefully considered what economists call the «supply-side», that is the systems whereby goods and services are produced. At first, it might appear that we are advocating a return to the doctrines giving priority to the supply side as proposed by classical economists from Adam Smith to Karl Marx and many others until the beginning of this century.

But we should also stress that in the new Service Economy, demand is not simply confined to its traditional function as an indicator of equilibrium. For in the changed circumstances of the Service Economy, systems of production and consumption are extended in a time whose length in each specific case is merely a probabilistic assumption.

In this context, the role of demand is much more important than it was in classical economics. Demand represents a selection mechanism which is not only confined to selecting products and services offered on the market. Even production proposals and ideas for new products are submitted to this selection process and might never reach the market and will never be priced. This is particulary the case with formulating strategies for technological innovation which frequently involve a portfolio of projects each requiring separate investment, only one or two of which have any chance of success and will actually “appear” on the market.

This role of demand, recognised as being essentially a selection system, is also an indication of the change of the philosophical system of reference. As Karl Popper noted, in the Lamarckian system, selection functioned as a kind of normative activity of nature, whereby demand would indicate to production what was to do. This might be partly true for known products, but clearly no consumer ever told Mozart to compose his operas or a computer manufacturer to invent computers. In fact, selection is essential to maintaining the normal working of a system and to checking the efficiency for production in the economic and social sense. It is the “producer” who invents and proposes new or different “products”.

It is furthermore obvious that, in the moment when performance represents the value of production, the consumer becomes much more than a simple "user": he invests time or money, or both, in the utilisation of systems, products and services in order to insure that they work and perform satisfactorily. The consumer has become prosumer, to use Alvin Toffler's neologism.

It seems clear that in the modern Service Economy, consumers are ceasing to be passive buyers and are beginning to make their own contributing to the utilisation and wealth creation which have very much become a part of production. They often co-produce.

2.7. Science and technology: achievements, myths, dreams and superstitions

2.7.1 Science and technology in economic history

In order to appreciate adequately the transition from the Industrial Revolution to the Service Economy, it is essential to consider the role played by science and technology in economic history and theory. The debate on this issue is very often inadequate, confused and sometimes lacking the necessary professional depth.[27]

Technology, techniques and the development of tools have constantly accompanied human history. The stone age, the iron age, the Industrial Revolution defined a key connotation of human development and such a definition also refers to new levels of technology. It must be clear that technology has

[27] For a complementary view of the role of technology in society refer to Friedrichs, G./ Schaff, A. (1982): Microelectronics and Society - For Better or for Worse.

never been linked until the end of last century to scientific development. It was the result of human ingeniosity, intuition and ability to produce tools to better hunt, domesticate animals, build houses, etc. Even the Industrial Revolution, in its first phase, was developed by practical "engineers" able to use steam, without really knowing that water itself is composed by hydrogen and oxygen. The production of iron was the consequence of pragmatic observations which developed through hundreds and thousands of years, without knowing what carbon or iron ore were.

Modern science on the contrary is the daughter of the philosophical enquiry to comprehend the structure of the universe and the composition and behaviour of matter and materials. It is essential to understand that only at the end of the 19th century scientific research made an impact on the production of new tools. This process is very adequately described by David Landes[28]. The analysis of Landes is a very good example of highest academic standard since he belongs to that rarer class of inquisitors who fit and extend the experience and practical knowledge of many experts who have been involved in manufacturing or industrial professions.

We have to dwell on these remarks because when during the last century in most cases (including Marx) the notion of science was used, it did not refer to the reality and practice of science. Instead, it pertained to an ideology for which the definition of any activity as scientific was a way, in most cases dogmatic and ideological, to attribute to such activity the quality of perfection or certainty and final authority. In a more practical sense, scientific methods referred and still very often refer to a job which is well-done, i.e. with maximum precision ren-

[28] See in particular his book Landes, D. (1969): The Unbound Promotheus. Another key study is Landes, D. (1983): Revolution in Time - Clocks and the Making of the Modern World. Which is an in-depth analysis of the development of the watch industry.

dering a desired result. This, however, does not elevate such processes necessarily to the level of science. Analysing the majority of writings on this subject, we gain the impression that it is possible to apply the qualification of "scientific" to any sort of "well-done" activity, in extremum even to the primitive man cutting stones[29].

If, on the one hand, scientific advances are motivated by and based on human dreams and stimulated in some cases by myths, they imply at the same time a constant criticism and identification of limits to any apparently precise definition or certainty. This is the big difference between the philosophical believes of our times and those in the past century, when, because of deterministic assumptions, science was considered a method to achieve certainty and as such a competitor to religion.

On the contrary, whereas a religion assumes some truths by definition even if they cannot be proved, science takes as a basis any accepted knowledge or existing scientific theory, in order to find out where and at which point such a theory is inadequate, incomplete and therefore cannot be taken as definitive in time and space. Religion does not spend time to demonstrate the non-existence of God or the insufficiencies of God whereas science starts from, for instance, the theory of Einstein in order to achieve a high level of knowledge and tries to discover its limitations and inadequacies. Scientific knowledge therefore has to do with a constant recognition of the limits to certainty. Due to these limits progress is still possible, whereas the philosophies which in the last centuries so much developed the ideal of progress as a search for certainty in fact destroyed the possibility of progress as a result of their deterministic

[29] We have dealt with this subject in Giarini, O. (1980): Dialogue on Wealth and Welfare.

views. Religious faith has to do with the search for universal truth, scientific faith - if this image can be used in such a case - has to do with uncertainty.

2.7.2. Managing the uncertainties of modern science based technology[30]

In order to explain the historically rather unique economic growth after World War II (at the average rate of over 6 % per year in real terms for a period of 25 years) experienced in the industrialised countries, the understanding of the relations between science and technology is of essential importance. In fact, the marriage between science and technology, which started at the end of last century, took some time to be really consummated, and to be perceived as the fundamental revolution that it really was. It is only at the beginning of the 1930s that research as such, both technological and scientific, became a professional activity in the economy. In other words, specific budgets for research were being allocated to specific goals. World War II accelerated the interpenetration of science and technology so that the production capacities of supply in 1945 were a unique historical event. This fact, largely overlooked by economists, probably for the lack of other such experiences in the past, explains the singular performance of the economic growth in the industrialising countries from 1947 to 1973.

The tendency has still remained in some circles to consider science and technology as a kind of magic achievement by the human intellect, conceived in abstract terms, guaranteeing an unlimited elasticity of supply in the future. Serious analysis was substituted by the growth of a new myth, under-

[30] See Giarini, O./ Loubergé, H. (1978): The Diminishing Returns of Technology.

standable in terms of the desire for dreams, but in fact opening the doors in some cases to a modern kind of superstition, that has been the contrary of what science is all about. This tendency has often been countered by an equivalent negative one: modern technology, for other circles, would be at the root of most, if not all, modern "ills". Both tendencies should be rejected as technology provides humanity merely with a set of tools that are in themselves neither good nor bad. What is at stake is the responsibility of humankind and the ways in which the tools that technology provides are used. Innovations and discoveries are in any case linked to human nature for the good or for the worse. Globally speaking, humanity is far better off than it ever was in the past.

The advancement of science as basis for new technologies created the conditions for an economic development that is to this day often neglected or misunderstood. The first issue to be considered is that science, having to do with fundamental knowledge, develops through new discoveries. Such achievements, however, cannot be defined in advance and they mature through a process essentially exogenous to any economic or market stimulus. New findings, new facts are by definition not known in advance and even the path to reach them is just a matter of hypothesis and of probabilities.

If existing knowledge and available technologies can be mobilized to define an achievable project and have it done in a given period of time (the case for instance of building a booster by the NASA in deciding to reach the moon as it was done in the 1960s), it is clear on the opposite that whenever new technology depends on discoveries not yet made, the process cannot be considered as a direct consequence of endogenous economic or even cultural forces. This fact and this type of link between science and technology is at the basis of the phenomenon of the diminishing returns of technology.

The notion of diminishing returns is present, under various names and theories, in almost all disciplines, both in the hard sciences (the notion of entropy) and in the social sciences (in economics when it recognizes the diminishing returns of technology of the factors of production). It is clear that the invention, the development and the production of new tools is a way to fight the phenomenon of diminishing returns. We will illustrate this point through an example.

The normal walking speed of of a human being is about 5 km per hour. Short distances, however, can be covered much faster, e.g. 100 meters in perhaps 10 seconds. If we want to run 200 instead of 100 meters, it is obvious that the additional 100 meters cannot be run at the same speed as the first 100 meters. This is even more true for longer distances like 500 meters, 5 km or 50 km. The longer the distance to be covered, the longer it takes not only in absolute but also in relative terms. However, by taking a bicycle we can of course make great progress, enhancing our performance. Nevertheless, the phenomenon of diminishing performances - or returns - also applies to bicycle riding. It may come into play at a later moment but it invariably will do so. Improvements to the technology “bicycle”, like introducing a gear box, lighter frame or thinner tires, will help to postpone the moment when the technology finally proves insufficient and inadequate.

A new technology will have to be introduced to overcome the limitations of the existing one. Substituting the bicycle by an automoblie will again improve our performance for a certain time but then we will have to switch to another yet superior system, an airplane. And after that maybe to a space shuttle. At each level of new and more advanced technologies, we are able to counteract the phenomenon of diminishing returns at a previous level. The higher the level of technology, the more sci-

entific knowledge we have to introduce in order to make the improved performances possible.

There are always and in all sectors opportunities for improvements of the current technology, but they operate through a process of diminishing returns. Whenever a given set of technologies has been exploited to its limits, only the introduction of an entirely new set of technologies can lead to a leap in efficiency that overcomes the diminishing returns. This radical progress, however, is linked to scientific discoveries and inventions that are dependent on an exogenous system.

Therefore, the phenomenon of diminishing returns of technology, which can be observed during the whole development of the Industrial Revolution, has always accompanied us. It facilitates the understanding of this process in the progress of human performances in terms which are realistic instead of being mythical or ideological. And it indicates the way to further developments.

We also know that between the moment when a fundamental new scientific discovery is made and its subsequent application in technology, the time needed is rather long and has to be measured in decades rather than years. Some authors provide examples of the quick transposition of new technologies at the industrial level, but they always refer to innovations where no real key fundamental discovery was introduced. What is possible in terms of improvements of existing developments is not to be considered as equivalent to a fundamental discovery which can revolutionise the whole way in which we understand and deal with matters and materials.

Some will remember that the electric car preceded the combustion engine and that for a while both systems where employed next to each other. But the efficiency in the manipulation of batteries did only improve relatively little and there-

fore, because of the insufficient knowledge on how to control the production and performance of small systems producing/storing energy, priority was given in practice to the combustion engine. The economic choice was conditioned in fact by limits in fundamental knowledge.

It is important to realize the power of technology and at the same time recognise the limitations of our ability to command specific predetermined scientific breakthroughs that are necessary to produce certain results. We cannot expect science and technology to come up unfailing with the solutions to all our problems. Such irrational attitudes have to be combated, they are no modern magic that can be manipulated in any desired way. There will always be an element of uncertainty and challenge involved.

2.7.3. The Service Economy and the interrelations between technology and economic performance

In the interrelation between technology and economic performance in the modern world, there is a fundamental phenomenon that in economic terms leads to the Service Economy. This transition can be observed essentially by those having to do with the practice of the industrial production. Here are some examples of a number of practical cases dating back to the late 1960s and at the beginning of the 1970s[31].

At the end of the 1960s, it was considered probable that thanks to the new sources of energy produced through nuclear power, the cost of energy itself could have dropped considerably with respect to other sources. An energy revolution was expected, similar to the one which happened in the computer

[31] All these examples refer to studies done by industrial clients in different parts of the world in one of the major world research centres in its laboratory in Geneva.

industry. A series of techno-economic studies were conducted throughout the world to identify all the chemical processes which could have been substituted by thermo-processes based on nuclear energy. It was at the end of the 1960s that the first problems concerning the real possibility to diminish the cost of nuclear energy started to appear and destroying therefore the market of research in this area.

During the same period, the Jumbo Jets were offered to the aviation market proposing to carry up to 500 people at a time. The existence of an even bigger aircraft, the military transporter Galaxy, was there to stimulate the idea about a next generation of airplanes carrying over 1000 persons. Until this day, there are no commercial aircrafts of this size. In the chemical industry, research centres were still trying to submit studies and prototypes concerning units of the great chemical intermediaries such as ammonia or ethylene, which were thought facilitate through a single reactor production of up to 5000 tons a day. Whereas during the previous 15 years, constant improvements had been made this process came to a halt.

In all these cases, it appeared that the process of achieving economies of scale in the traditional economic logic had reached limits. The feasability of these larger systems was increasingly questioned taking into account problems of security and the increasing costs of logistics. That meant that the organisation of making these units working was producing costs higher than the gains obtained by the concentration of production. This means in economic terms that the process of economies of scale was not only achieving a maximum but that, introducing the costs linked to logistics (in fact all forms of service activities), the global productivity was diminishing in relative as well as in absolute terms.

The case of liquid fertilizers illustrates this point further. Assuming that they could have been used easier by peasants, it seemed logical to stimulate the production of liquid fertilizers further. However, such fertilizers could be distributed only from 3 to 6 weeks per year and required injecting machines of a considerable cost, especially taking into account that these machines had to remain idle for about 11 months per year. The notion of the utilisation of capital tools in this case was central, together with problems of vulnerability and volatility. In fact, the world fertilizer market at the time already involved the shipment of several million tons. The costs of the storage of the products were and are still considerable. It was enough that in major consumption areas, there would be a couple of weeks of rains more or later than foreseen to provoke a very strong pressure on stocks. And even if in some areas very well-organised cartels were supposed to manage the whole system, they were not able to control such situations.

For instance, the price of ammonia and related nitrogen fertilizers would multiply or drop by very large margins according to such pressures, originated by a quantity of products which, in terms of the total world market was of the order of less than 1 or 2% at variance with the “normal” situation. Concentration of production and distribution constraints produced much strain on prices which had become, beyond all possibilities of organised control, more and more volatile or vulnerable in price terms. Adding to this, there was also the storage problem of fertilizers that became an increasingly vulnerable issue partly for reasons of humidity.

When in 1973 the oil crisis struck, it happened essentially due to the profound changes in the production systems and because of the vulnerability of storage/ distribution systems. It was first of all the economic system that had become vulnerable and volatile. The capacity of the oil countries to coordinate and con-

trol the market was secondary and in fact benefited from a situation which was economically and politically exploitable because of the new realities of production and distribution. Here lies the reason why the oil crisis of 1973 became a signal of a general downturn in the overall rate of economic growth (from an average of 6% per year to 2-3% for early-industrialised countries).

If it had been only an oil problem, this would have justified an increase in inflation of about 1 to 2% only. This was the result of deep research carried out in the major research institutes in the world, taking into consideration the effects of the increase in the oil cost in all economic activities. Such studies had already been carried out with input-output models one or two years before the first oil crisis took place. Therefore the oil crisis was just one aspect of something deeper concerning the transformation of the economy. A key aspect of which was that service functions, concerning in particular storage and distribution, utilization costs etc., were in fact the key economic factors and the pure manufacturing aspects became a sub-system.

Industrial and manufacturing companies in the world, in the main, understood this situation: they did not need new economic theories, experience was enough. They just had to face obvious problems which needed new solutions that more often than not were found and put into practice. It is at the general macro-economic level that the situation was showing obvious difficulties in understanding the fundamental reasons for the new rigidities of supply, for the persistence of inflation and the failure, during the 1970s, of the stop and go economic policies.

Possibly the evolution could have been different, had new fundamental discoveries been made during the 1970s in the sectors where they were most needed to reverse trends towards more rigid production systems. But this did not happen and great leaps forwards were taken in sectors that were not able in

the short run to compensate the new rigidities. It is here where we find again the logic of the exogeneity of fundamental changes linked to the mechanism of science and technology.

Nevertheless, it should be noted that the increase of service activities[32] within the production and manufacturing system itself was and is not necessarily an indicator of increases in efficiency of the capacity to grow in view of a greater wealth of nations. Economics still need to learn how to augment real productivity of services. The main problem is the wealth of nations, still measured today in the terms of the period when the pure manufacturing system was the priority and dominant over every other aspect of economic development.

In the new system, where value is linked to performance, it is imperative to adopt measures to evaluate differently the growth in the wealth of nations and at the same time promote - understanding the basic realities of the conditions of the production of wealth - better economic policies. Our improved knowledge and understanding of things should open the way for a brighter future. The feelings of impotence or inadequacy of current economic policies is not the consequence of the challenges of reality, but of our capacity to adequately understand them. This is also expressed by Charles Goodhart, professor at the London School of Economics and an expert in the field, who answers on a question on how to deal with the employment problem: "*The honest answer is that virtually nobody knows. There is very little understanding of what has caused the severe and and wors - ening unemployment problem in Europe. There is a general agreement [...] that it comes from the supply side.*"[33] In this report, we hope to change this situation, providing an explanation

[32] See Giarini, O./ Stahel, W. (1993): The Limits to Certainty.

[33] Goodhard, Ch. as cited in: Global Asset Management (1996): Speeches and Papers Presented at the GAM Conference 1996.

for the occurrences during the last decades and the unemployment problems. Our solution, however, is not an application of traditional doctrines and remedies, we rather need to change the whole frame of reference and adopt a new stand-point from where to observe the new Service Economy.

Points of controversy

6. Constraints in technology development

Technology has been an indicator of economic development as much in the stone age or later the iron age as it is today in the information age. All these epochs are defined by a specific level of technology.

But a fundamental change took place at the end of last century: for the first time in history, scientific discoveries began making new forms of technological development possible. This key phenomenon (a marriage between science and technology) was behind a unique growth rate in the industrialised countries for a quarter of a century after World War II.

The marriage, however, not only made technology increasingly dependent on the ability of well educated engineers and specialists to manipulate processes and materials. Because of the link to, and therefore reliance on, basic scientific discoveries, technology was also increasingly dependent on a phenomenon exogenous to the economic process. In other words, raising prices would be of no avail if a needed technological solution was dependent on fundamental scientific knowledge not yet available.

This was the case after 1973 when everybody hoped that, with the price of oil soaring, alternatives could be found thanks to technological progress. Ten years later oil prices went down, but only as a result of slow adjustment in the consumption of energy. Meanwhile, an incredible development started elsewhere as scientific knowledge in the field of information storage and distribution achieved an unforeseen level of maturity.

In addition, another fundamental change had taken place on the supply or production side of the

economy: the growth of services as a paradoxical consequence of the success of manufacturing technology.

There are, of course, always and in all sectors, opportunities for technological improvements but, as they happen in any other human or natural activity, they operate through a process of diminishing returns. Each given set of technologies can be developed up to a maximum boundary, beyond which new inventions (for technology) and new discoveries (for fundamental research) will be needed and developed in a negantropy process. Only when there is a major scientific breakthrough, introducing a new set of technologies thanks to a superior level of knowledge, can a jump in efficiency be achieved that overcomes the law of diminishing returns. We can expect breakthroughs to happen but we ignore their nature, when and where they will take place and we cannot command them at our will when they are of a fundamental nature. As a consequence, (economic) policy making should not rely on a given technological dream or ideology to become reality, but stay within the boundaries of the commandable.

3. Productive work in the Industrial Revolution System

The Industrial Revolution created a society of greater richness and complexity as ever before and the perceptions and underlying assumptions of how economic systems work still influence very strongly our current thinking. For this reason we refer to the economic system that dominated during the last two centuries as the Industrial Revolution system, as opposed to the previous agricultural system and the new Service Economy.

It is obvious that the tremendous changes caused by the Industrial Revolution would find their counterpart in the transformation of the ways of working. The introduction of new modes of production, the switch to what we call a factory system, the abundance of a great variety of innovations lay at the heart of this revolution. David Landes subsumes the advances of society under three principles: *"the substitution of machines - rapid, regular, precise, tireless - for human skill and effort; the substitution of inanimate for animate sources of power, in particular, the introduction of engines converting heat into work, thereby opening to man a new and almost unlimited supply of energy; the use of new and far more abundant raw materials, in particular, the substitution of mineral for vegetable or animal substances."*[34]

For the worker these changes were fundamental, for they did not only affect his occupational role, but his very way of living. The introduction of machinery into the production process implied for many for the first time a complete separation from the means of production. The production process was

[34] Landes, D. (1969): The Unbound Prometheus. P. 41.

suddenly split into human labour and capital. The rhythm of the machine dictated the pace of work and no longer could the labourer decide freely what to do and when to do it. The work had to be carried out under supervision and as a part of a team that was required to begin, pause and stop according to the requirements of the new factory system. With ever new innovations that lead to changing and always different ways of production, a new element of constant change was introduced. The shift from a rural life dominated by agricultural production to the new factory work was not simply the change of one labouring status for another, of one life-style for another. It was the starting shot for an entire new evolution of a fluid society.

Historically the farmer or artisan worker was tradition-bound in his expectations for himself and his children. Knowledge and expertise were more often that not hereditary and passed from father to son, from mother to daughter. The same production processes prevailed for generation and experienced seldomly more than just minor modifications. As a result, real output per head from about 500 to 1800 AD in Western Europe crept up by an avergae of no more than 0.1-0.2% a year. At that pace living standards do not improve noticeably during an individual's life-time, and real incomes double only every 500 years.

With the Industrial Revolution all this changed, and labour had to follow the transformation of the production process as set by any innovation or new development. It took mankind several hundred thousand years to learn how to become more independent of nature by growing crops and domesticating lifestock. It then required several thousand years to become even more independent by subsituting human and animal labour with inanimate power on a large scale. The latest leap from the beginning of the Industrial Revolution to atomic power, computers and bioengineering has to be measured in decades rat-

her than centuries. We are still not in the position of commanding new technological and scientific advance at will, and probably will never be, but the pace of innovations is becoming ever more accelerated. Any halt will now indicate a backslide, any hesitation will signify the loss of opportunities. The half-life of technology and knowledge is steadily, and perhaps invariably, decreasing and demanding constant training throughout life to be able to meet the requirements of tomorrow's economy and its available workplaces.

3.1. A brief historical analysis

3.1.1. The value of work before the Industrial Revolution (self-production, unpaid systems of work, remunerated work)

The economy in the agricultural society that preceeded the Industrial Revolution was dominated - as the name rightfully expresses - by agricultural production. The relationship to land determined the social position of every member of the agricultural society. Those who owned the land and let others work were the masters. Others who had to carry out the agricultural production were the farmers and their families. Wealth in this stage of the economic evolution depended on the control of land and to ability to exploit it and determined thus the value of work. In contrast, trade and the accumulation of valuable objects like precious metals or gemstones was of lesser importance. As a direct consequence, the main economic policy priority lay in the aquisition of more land via political or conquest action. Social policies were virtually non-existent with the exception of individual or collective actions based on charity and goodwill or assistance, that did not involve any monetary transfers.

The economy in the agricultural age depended mainly on the performance of its dominant group, the farmers, who accounted for about 80% to 90% of the total population. Their main concern was to produce enough food to survive, consuming most of their output themselves, while the possibilities to sell unusual surplus were very limited. At least 2/3 of the work was done in self-production systems. There hardly existed any remunerated work and where it did, it was generally remunerated in kind. For their right to exploit the land the farmers had to pay tithes that usually consisted in part of their harvest. In exchange the landlord supplied housing facilities, organised the social and legal system and provided military protection. It is obvious that in this economic system of mutual compensation in kind or via certain actions, money as a means for the settlement of claims was almost redundant.

Only a negligible part of the agricultural society engaged in (long-distance) trading would really have gained from the broad introduction of a monetary system that is complex to design and difficult to handle and supervise on a large scale. There was no efficient monetary system that could be used to support trade simply because the need for such an exchange system via a third evaluation and calculation unit, i.e. money, did not exist for the majority of the population. Had someone tried to measure the economic performance in terms of monetary GNP, as is today world-wide recognized standard, the result would have not only subestimated the agricultural economy on a grand scale but it would also have taken as basis part of the economy that neither represented the whole nor demonstrated a significant correlation.

Only the radical social and economic changes of the Industrial Revolution that stimulated the previously unimportant monetary system would enable statisticians to regard monetary GNP as a measurement for economic wealth. This gave rise to

an entire new concept of economic performance residing nearly exclusively in the achievements of the monetarised part of the economy.

3.1.2. The new priority of the monetised activities in the Industrial Revolution system

The end of the pre-industrial agricultural society came with the increase of the importance of manufacturing industries. Whereas before the agricultural production was at the heart of the economy this did change in the 18th century, first in England and then throughout the world. The industrial production of goods became the dominant factor in the economy. With the invention of the steam engine by James Watt in 1793 and its integration into the production process, human effort could be substituted to an until then unthinkable degree by machine power. This led to a shift in the priorities away from a land-concentrated towards a production-oriented society.

Within this new society, the farmers were gradually substituted by factory workers, the craftsmen by machine attendants. The history of the Industrial Revolution is also the history of sectoral substitution: within two hundred years the proportion of people working in the agricultural sector fell worldwide from about 80% to 48% and in advanced industrialised countries to less than 10%.[35] The new highly specialised factory workers, a consequence of the growing division of labour, were no longer able to sustain themselves via self-production. They had to be remunerated for their work and so the former arrangement of mutual compensation in kind degenerated.

[35] UNDP (1995): Human Development Report 1995. P. 201.

Now, the basic economic values were referred to material objects and their exchange value. This changed the whole system of unremunerated work as the rule and remunerated work as the exception. With the Industrial Revolution remunerated work became the standard for all activities related to the production of objects and goods. This also changed the valorisation of unremunerated work within the society. Whereas before unremunerated work was considered equally productive now these other types of activities - as compared to the standard remunerated work - were considered non-productive. Service activities as a consequence were perceived as secondary, even when remunerated, since they did not attribute directly to the production process. The economic performance of a nation was measured as the gross national product, a supposed evaluation of the welfare of the population in monetary terms according to the remunerated productive achievement.

Today, at the brink of the Service Economy we are still strongly influenced by this anachronistic concept of welfare. Only very recently have economists started to rethink their position on welfare and the determination of GNP as an objective comparison of national performance.

Points of controversy

7. Productive activities and employment

The key feature of the Industrial Revolution had been the diffusion of the idea that employment is primarily a productive activity intimately tied into the manufacturing process and sanctioned by remuneration.

What appears obvious today, was not so obvious prior the Industrial Revolution: until the 18th century, the vast majority of productive activities devoted to providing food and shelter, were performed in self-production systems. Remunerated work, however important, accounted for only a very minor part of producing what society needed for material survival.

With time, increasing exchange promoted the utilisation of money to a point where a small part of what was used for transactions started being set aside to create what today are called savings. These savings in turn constitute investment capital for the purchase of production tools in the future.

It required the moral commitment and vigour of Adam Smith to make savings respectable in the face of what in pre-industrial societies was considered definitely more efficient, i.e. the development of trade and exchange. The process of capitalism was to be the central issue of the Industrial Revolution. Even communism was ultimately no more than an attempt to substitute private capitalism with a state controlled form of capitalism. As it turned out, the latter proved to be far less efficient. In parallel to the Industrial Revolution, remunerated jobs became the socio-economic priority causing societies over time to neglect the contribution of self-production and accepting non-remunerated productive activities only as an expression of goodwill. As such, the latter have been considered secondary, even if sometimes important.

As a consequence of this development and as one of the major heritages of the Industrial Revolution, almost automatically today, productive activities and the notion of employment are equated with jobs which are paid for (remunerated).

But how exactly do these three classes of productive activities (remunerated jobs, self-production and unpaid jobs) fit in a situation where the conditions

in the production of wealth have been fundamentally modified?

It is, at this point, useful to remind ourselves of the "paradox of heaven": this is a place where technology has advanced so much as to make it possible to produce material goods practically at no cost at all. The snag is that in such a situation nobody could be paid, with the result that our productive heaven would rather look like a social hell. We are caught in the middle of this paradox.

In searching for a way out, it would seem sensible to give very careful consideration to the nature of changes that have occured to the production system.

3.1.3. The development of the population[36]

The Industrial Revolution and its transformation of society and human life was the spark that led to an immense population growth often described as an explosion. The last two centuries were certainly not the first phase of rapid population growth in human history, but they unquestionably experienced the most dramatic of such increases. Earlier increases were usually compensated in ensuing years in part through the effects of plagues, famines and war. The Industrial Revolution, however, had a major impact on these regulative factors.

It is estimated that the world population at the beginning of the agricultural age, around 10,000 BC, lay somewhere between five and ten million people, mostly living in Eurasia. They

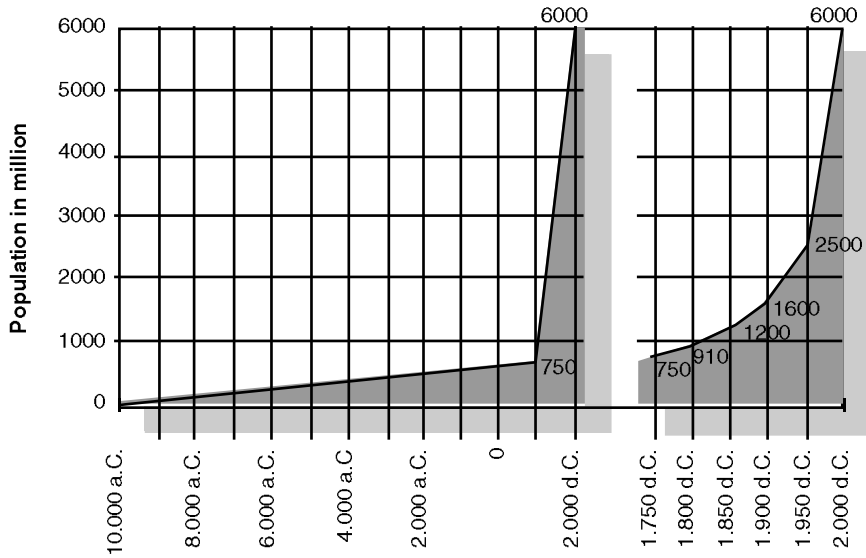
[36] Most of the statistical evidence in this chapter has been extracted from the following sources: Cipolla, C. (1962): The Economic History of World Population. Cipolla, C. (1974): The Fontana Economic History of Europe. Vol. 1-4. UNDP (1995): Human Development Report 1995.

were still engaged in hunting and gathering, forming widely spread groups or clans of about four to five families with 20 to 25 members in total. The population density never even reached one person per square kilometer and varied greatly by region and due to meteorological conditions. Plagues were still not a major factor due to the low population density, but violent deaths and times of scarce food together with high death-rates of newborn children kept the average life-expectancy fairly low.

With the introduction of the first agricultural techniques, man had to settle down to work the fields. This led to a greater independence from short-term environmental changes and made the support of an increased population possible. The agricultural society could feed substantially more people than the preceeding pre-neolithic one and growth rates rose to about 0.5% to 1.0% in a favourable year. But the appearance of settlements brought an unto then unknown factor of population control into existence: the plague. This new phenomenon had a decisive impact on the demographic situation since in some years the death rates could jump from a usual level of about 30 to 40 per 1000 inhabitants to ten times as much. This sudden disappearance of up to half the population meant a catastrophe, but it kept otherwise uncontrolled population growth at bay. As a consequence, for the ensuing nearly 12,000 years world population grew not always steadily but at a fairly constant rate until reaching about 650 to 850 million in 1750, the birth-date of the Industrial Revolution.

Due to the exploitation of new energy sources, more efficient production systems and advances in medicine and hygiene as a consequence of the Industrial Revolution, previous limits for population growth were overcome. Famines became in the industrialised society uncommon thanks to the scientific and more efficient approach to farming and an improved in-

frastructure that made food shipments from one location to another within shorter time possible. The introduction of new drugs and especially the discovery of vaccines together with superior hygiene and sanitation contained the plagues. During the ensuing two hundred years war, as the third exogene force, should exert the strongest influence on population growth.



Population Growth.

Source: Cipolla, The Economic History of World Population

Within one hundred years, from 1750 to 1850, world population nearly doubled from around 750 to 1200 million. It then grew even faster until reaching 2500 million in 1950 and today, in 1996, there are close to 6 billion people living on this planet.

Demographically, the trend of a growing society can be explained by increasing life-expectancy in general and falling death-rates, especially among newborn and children, that overcompensated the decreasing birth-rates. Only rather recently do we experience a situation where in some early-industrialised countries the birth-rates have fallen below the de-

ath-rates, causing the population to shrink “naturally”, i.e. not as a consequence of famines, sudden plagues or war action.

These developments display a close correlation to the beginning and the extent of the transformation towards an industrialised society in different regions of the earth. At the start of the industrialization process in England in 1750, the yearly death-rate was 30 per 1,000 inhabitants. Fifty years later, when the percentage of people working in the agricultural sector had decreased to around 40%, the death-rate had fallen to 23%. Other nations experienced a similar development: Germany’s death-rate fell from 27% to 18.5%, France’s from 24% to 19.5% and Russia’s from 40% to 29.5%, all between 1850 and 1900, the times when the industrialisation process began in these countries. Today, peacetime death-rates for most countries tend to be substantially lower than 10%.

While the industrialisation had an immediate impact on death-rates and life-expectancy, the drop of the birth-rates lagged substantially. This created a situation where for some decades the population of countries in course of industrialisation displayed accelerated growth. Today, we can observe this phenomenon in many developing countries where only a more mature economy promises to retain population growth.

3.2. Working population and employment (paid) in the Industrial Revolution system

3.2.1. Population: today and tomorrow

According to the Human Development Report 1995 of the United Nations, world population amounted to 5.4 billion in 1992 and was growing at an estimated rate of 1.5% per year.

According to this estimate, there will be 6.1 billion people in the year 2000 and about 7 billion another ten years later.

Population growth, however, is far from being homogeneous throughout the world. While the industrialised countries experience a very moderate growth rate of less than 1/2% per year, developing countries expand at 1.8% p.a. It is hardly perceivable, that developing countries will continue to grow at such accelerated rate in the future as well since this would imply doubling every 39 years. And indeed, if we examine the dynamics of population growth, comparing the average growth rate from 1960 to 1992 with the estimated growth rate for 1992 to 2000, there is a significant decline from 2.3% to 1.8%. It seems that the industrialisation process is provoking the same reaction, first accelerated growth and then stability or even slight decline, in the now developing countries as it did in the industrialised ones during the last two centuries.

As a consequence of improved living standards, sanitation, health services and a decline in newborn and maternal mortality rates, life expectancy is growing everywhere and has added another 17 years since 1960 to the average life-span. It is now 65.7 years at birth, meaning that a newborn child would live for nearly 66 years if prevailing patterns of mortality at the time of birth were to stay the same throughout the child's life. But it is rather unlikely that it should stay the same over the coming years. In the past, life expectancy displayed a growing trend, especially for those over 60 years of age who can today expect another 20 years of life in industrialised countries. While in developing countries there is no gender related difference in life expectancy, in industrialised countries women can enjoy life for an additional five years in comparison to men.

If we take these developments into account, we seem to face a future where the population of the developing countries

will have doubled by the year 2025 while that of industrialised countries will grow much slower. It will also be a future of a more mature society since both average age and life expectancy will continue to increase. The ratio of the population defined as dependend, those under 15 and those over 64, to the working age population aged 15 to 64, will fall. In industrialised countries it has already reached 50% while the developing countries exhibit higher rates due to their very “young” demographic structure.

As a consequence of these developments, the composition of labour supply by age, gender and qualification is undergoing a substantial transformation in time due to the changing socio-demografic factors. In turn, these changes in the labour force will also affect future labour demand because of varying economic preferences of an otherwise structured society. This in turn will have an impact on labour supply as new opportunities will rise and some established jobs will experience a fall in demand, thus causing the system to shift its priorities and incentives.

In a purely accounting sense, the majority of employment growth in the past can be attributed to population growth. The OECD estimates that about 85% of the employment growth in its member countries in the 1980s were caused by a growing population. We should therefore expect the regions with the highest growth rates to display the highest rates in employment growth. However, national differences in the evolution of participation rates, especially the generally increasing but regionally varying participation of women and older people in the labour market, and dissimilar capacities to absorb an increased labour force without causing unemployment can account for substantial differences in this development.

Since the old-age dependency ratio is expected to rise in most countries, necessitating changes in the financing of old-age pension schemes and variations in the retirement age, this will affect the composition of the labour force as well. Since demographics have to be, at least over the period of one generation, accepted as an exogenious factor, the increase in old-age dependency ration from about 19% today to over 22% in 2005 in industrialised countries, according to the OECD, has to be battled on other grounds.

Immigration from countries with considerably "younger" demographics in developing regions of the world can only in part be a solution. To keep the old-age dependency in industrialised countries on today's level, a net influx of almost 200 million working-age immigrants, about one fifth of the actual OECD population, over the next ten years would be necessary. The ensuing social problems can hardly be imaginated. For comparison, the European Community experienced a net migration inflow during the last decade of about 1.4% of the total population and even traditional immigration countries like the USA and Canada displayed proportions of just 2.8%.

The most logical solution to the problem of increasing old-age dependency would be to lift the age limit. The extension of the working age population definition from now 15 to 64 by another five years to then 15 to 69, would immediately add 3.9% of the US, 4.7% of the French and 4.9% of the German population to the independend age group.[37] This technical change would reduce the dependency rate drastically, overcompensating the demographic effects of the next years. An extension of just one or two years should more than suffice to counterbalance the immediate demographic changes. With

[37] Ratios estimated according to ILO (1995): Yearbook of Labour Statistics. Table 1.

augmenting life-expectancies, however, a continuous elevation of the age limit will be necessary.

An altogether different effect is the likely decline in the relative numbers of young people entering the labour force. This implies that the effect of usually more qualified labour market entrants leading to an upskill of the workforce will diminish. Stimulated immigration will have a similar effect on the mean qualification of the workers since immigrants to industrialised countries are on average less highly skilled than the national workforce. As a consequence, more future resources will have to be allocated or greater incentives will have to be provided to retrain workers throughout their active lifes.

We have to bear the intricacies of these demographic developments and their impact on the structure and composition of the labour market in mind when thinking about the future of work.

3.2.2. Education and Employment

Education is a prerequisite for employment and perhaps the most important asset of a human being when facing an uncertain future. Nevertheless, it is no fail-save insurance policy against possible future unemployment, but it generally improves the chances of finding a job. Successful education will prepare the student to cope with the demands of tomorrow's society and its economic system.

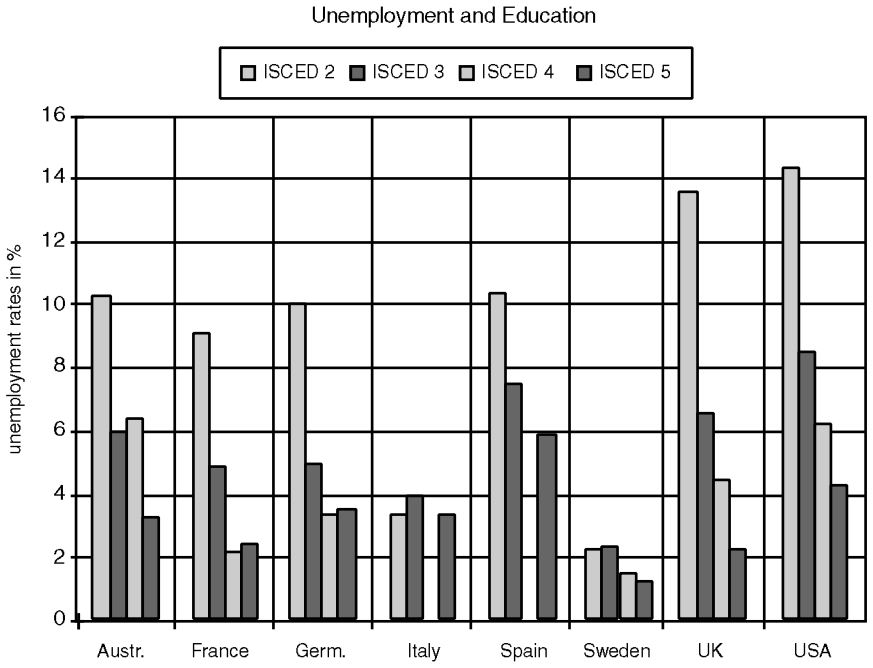
We have already identified two trends that exert major influence on education and training: decreasing half-life of knowledge and increasing life-expectancies. Whereas in the past a person could aquire a certain working knowledge that would change little during his active period in the labour market, he is now faced with a situation where constant training is

necessary to stay in touch with newer developments. The higher and more specialised his knowledge and the faster new developments penetrate his working environment, the shorter the intervals at which they have to be updated. IBM estimated that the current half-time of basic school-knowledge is about 20 years, that of university 10 years, specific working knowledge for most jobs about 5 years and for technology jobs about 3 years. This means that every 3 years an engineer has to update 50% of all his specialist knowledge, computer programmers even every other year.

The implications of this accelerating process are obvious. Only continued training of those in the workforce, and older workers in particular, is now more necessary than in the past to keep them active in the labour market and to increase their chances of regaining employment in the case of job displacement.

An OECD study in 1989 indicates *"a direct relationship between the level of [educational] attainment and unemployment rates for the total working-age population [...]. People with the lowest levels of attainment tend to have the highest unemployment rates - it is the least well educated who suffer most in terms of higher unemployment*".[38]

[38] As per OECD (1992): Employment Outlook. P. 59.



Unemployment Rates by Level of Education[39] (Males).

Source: OECD, 1994.

The role of education and training in developing employment-related skills is recognized as a key element of the economic performance of any society. This development means different things at different ages. For young people it means that they are offered at least the opportunity to attend primary education and whenever possible complete a secondary level of schooling. Both will increase their chances of finding a first job, and provide a basis for job-related training as the need arises. For adults, training and retraining must continue to accomodate emerging technologies and structural changes.

[39] ISCED 2: Second level, first stage often corresponding to the end of compulsory schooling. ISCED 3: Second level, second stage referring either to general, technical or vocational education that prepares for direct entry into the labour force or provides preparation for further education. ISCED 5: Educational programmes often offered outside of universities leading to a qualification below that of a degree. ISCED 6/7: Education leading to a first degree or equivalent, and post-graduate degree or equivalent.

The provision of training is linked not only to governments but also employers: governments play an essential role in determining the structure of the education system and employers in determining the training that is provided after formal education, or in conjunction with it. In all cases it has to be asserted that the quality of the education and the training correspond as much as possible to future needs. There is hardly a larger loss of human effort and idealism imaginable than in the cases where highly skilled people meet the general quality level of the labour market but not its demands due to a skills mismatch.

Yet another problem we are facing is that of our ability to select information. Whenever most experts portray an image of future society, this image is strongly influenced by increasing knowledge and the so-called information revolution. This information revolution more often than not implies that we are facing an increasing flow of information. Today, computer and communication technology has provided us with the ability to access more information than at any time during the past. Of one thing we may be sure, however. Any sustainable human society of the future will not be based merely on information and the future welfare of humanity will not depend solely on the amount of accessible information, but rather on our ability to select this information.

Even before modern information technology and electronic networks accelerated the flow of information to flood proportions, we were constantly invaded and overwhelmed by huge amounts of input to our neural system. In our everyday lifes we continuously select from this input those parts that we deem relevant and discard anything else. This process of information selection is a function of our personal experiences and predisposition in a certain situation. For example when we look at something, the vast majority of the information availa-

ble to our eyes is strongly selected and weighted as a function of our state of mind, the degree of curiosity and concentration, but also as a function of our specific aptitudes and the sort of previous experiences we had. Those experiences are closely connected to our education and profession. A painter will readily notice colors, an architect shape, a social analyst the type of persons surrounding him etc. Given this phenomenon, at almost every moment of human experience, more information is available than we are capable of processing and the majority of it, either consciously or unconsciously, is selected.

The availability of electronic media that makes access to many types of information easier and faster, might at the same time confuse the selection process. Present communication systems have quite obviously increased the prevalence of redundant information, irrelevant news and repeated dublication of the same signals and publications. As such, they constitute a growing challenge to our capacity to select, and herein lies the real issue concerning the so-called information age.

What is needed for the future is not only mainly an increase in information, but an increase in the efficiency by which we select and subsequently weight this information for drawing our conclusions. Our capacity to select and weight is linked to our education and experience, to our culture and value system, to the purpose and our aim. They give significance to what we receive, the rest is white noise as technicians say. As a consequence, the greater prevalence of all sorts of information afforded by the new technologies will only be of value if at the same time it engenders a greater sense of resposibility and understanding, a higher level of culture and ultimately an enhanced ability to select. These can only be bestowed through constant and efficient education. Only in this way will we be able to meet tomorrows challenges, not only in the labour market but everywhere.

3.2.3. Work, activity and the life cycle (from young to old)

Never before in history has mankind faced such a tremendous change of demographics as in the course of the Industrial Revolution. Whether pre-neolothic hunter or member of the agricultural society before 1750, life-expectancy at birth ranged on average between 20 and 40 years, with no pronounced trend towards longer life-spans. But then a miracle happened, suddenly people were to live considerably longer lifes: around 1900, life-expectancy in Western Europe was 47 years, in 1950 it increased to 67 years, it is today estimated at 77 years and still growing. To make good things still better, we can all expect to spend most of our remaining lifes, with the exception of the very few last years before dying, in reasonably good health. This leaves plenty of time and opportunities for active endeavours of all kinds. Unfortunately, our economic and social systems have not responded to these dramatic changes in an adequate way. Our social system is still organised as if we had the same life-expectancy as in 1950 and our educational system is just beginning to come to terms with the concept of life-long learning.

The different phases of human life are marked by varying degrees of education and training, remunerated work, voluntary work and other activities. These other activities comprise, besides those necessary to survive like e.g. sleeping and eating, leasure time that can be allocated in a totally unproductive way if desired. In the classical system in industrialised countries we first receive education through our parents and then through attending schools at primary and secondary level. Besides this basic education, most of the time is dedicated to the aforementioned other activities and some time perhaps to voluntary work. Active economic participation tends to be very low sin-

ce school attendance is in most cases compulsory. This first phase in life ends either with the termination of secondary education and the entry to the labour market or is prolonged by additional full-time tertiary education.

The next phase traditionally is the one where active economic participation in the form of remunerated work plays the most important part. Economic activitiy rates in advanced industrialised countries as estimated by the International Labour Organisation confirm this, between 80% and 90% of the total population aged 25 to 55 furnish the labour supply, i.e. they fulfil the requirements for inclusion among the employed or the unemployed. Education and training are drastically reduced and some voluntary work is carried out. This stage lasts until official retirement, when remunerated work is suddenly and abruptly abandoned and the so released time allocated to either voluntary work or other activities. This rather rigid system, however, does neither correspond to the wishes of the individual, that lacks accompanying education and training during the second phase and is often confronted with a retirement-shock at the start of the third phase, nor does it comply with the exigencies of our modern society.

Perhaps in part as a reaction to the shortcomings of the established system are we witnessing two major trends: the Industrial Revolution, particularly during the last couple of decades, has accelerated a tendency whereby the young enter the labour force later – sometimes today not until the age of 30 even – in favour of longer periods of education. In addition, the older have started to retire earlier than in the past: in the USA the number of people in early retirement schemes increased from 1.2 million in 1970 to 2.5 million in 1990, in Germany it rose from 8,000 in 1975 to 21,000 in 1990 and in France it exploded from 11,600 in 1981 to 200,000 in 1989 (OECD). Between 1976 and 1983 a series of measures enabled all French

wage and salary workers, and most of the self-employed, to retire at age 60 on full pension subject to contribution conditions. Other countries to introduce reductions at the time were Canada, Ireland, Germany, New Zealand, Norway, Sweden and the USA.

However, this second trend towards earlier retirement is now gradually reversed as some countries adopt measures to increase the retirement age of their workers, mainly under the pressure of overloaded social security systems. The American 1983 Social Security amendments was the first initiative to increase rather than decrease the age of full entitlement, taking effect in 2000 and rising the age limit from 62 at present to 66 by two months every year. Other countries like France, Germany, Italy, Japan, Sweden or the UK have followed suit by increasing either the pension age or the number of contribution years to social security and by offering less favourable conditions to retirees.

The most recent development in this field is the introduction of a more flexible retirement, the possibility to combine a pension with earnings from employment and various possibilities for phased or gradual retirement. The corresponding public legislation has been already passed in different countries, including Denmark, France, Germany, Italy, Japan, Spain and Sweden. This enables older workers to leave employment gradually and remain active later, avoiding the shock of an abrupt retirement.

3.2.4. Women and work

3.2.4.1. A brief historic analysis of women and work

Women are as much part of the economy as are men, and they have always attributed much in the same way by supplying their work. The Industrial Revolution did not lead into a new era in the employment of women in that sense. But the last two centuries did – in a certain way – discover the women worker as a new part of the transforming and transformed society. A closer look at the historic role of women and their employment in the economy will reveal this fact.

In the mid-eighteenth century the population of Europe, just as the rest of the world, was mainly rural, and women were largely engaged in productive work in their homes and in some form of domestic industry. In the towns the woman wage earner was not unknown and a significant number of women were engaged in some form of trade. But here again, women more often shared the activities of their husbands and acted as partners in the industrial, as in the agricultural sphere. As a result of the changes which took place in the latter half of the eighteenth century, first in England and then throughout the world, this state of affairs became no longer possible. Women's opportunities for productive work at home were gradually lessened as new agrarian techniques and methods proceeded, while at the same time industrial changes deprived them of employment in the older domestic industries.

At the turn of the century, in the transition period before women were re-absorbed, or had found their place in the new order of things, there was a great deal of distress and unemployment among women. Since in spite of changed conditions the labourer's wage still remained below the level of family

subsistence, new activities for women and children became a matter of urgent necessity. Where possible new domestic industries, like lace-making, straw plaiting, glove-making, tambouring, button making etc., were introduced to take the place of the old. Each received a new influx of workers as other opportunities of profitable and remunerated work declined.

Although the workers did not participate to the extent they might have done in the advantages arising from the use of machinery, yet even so, for the majority of workers the factory meant higher wages, better food and clothing and an improved standard of living. This was especially so in the case of women, who in the first instance, were drawn from badly paid unskilled work in various trades, from agricultural labour and domestic service. The Industrial Revolution vitally affected women in economic terms. In the past, marriage for many women had been some sort of business partnership in agriculture, trade or domestic industry, but in the reorganisation which accompanied the Industrial Revolution, the majority of married women lost their economic independence. Unless they became wages earners outside the home they ceased to contribute to the family's monetary resources and themselves became financially dependent upon their husbands.

Married women had never possessed a legal right to their own earnings, or their share to the family wage. Nevertheless, in the new situation their financial subjection was greater than in the days when they contributed their share to the family income. While from the individual standpoint this might appear to be a backsliding tendency, yet, among the working classes, it was not always a sound economic proposition for the married woman to be a wage earner. Her remunerated earnings rarely

balanced the loss to the family from the non-performance of more important domestic duties. Her own labour was often exploited and in many instances women's earnings only served to keep their husbands' wages at the level of individual subsistence. In this sense the Industrial Revolution marked a real advance, since it led to the assumption that men's wages should be paid on a family basis.

This evolution, on the one hand, prepared the way for the conception that in the rearing of children and in home-making, the married woman makes an adequate economic contribution, although this contribution is by no means remunerated. On the other hand, it condemned women to assume a role in society that was unequal to that of men. Their restriction to domestic work prevented to a large extent participation in higher education and politics and depraved them in many cases of the opportunity to exert influence on social and economic changes. The system of economic dependence of women entailed their social dependence leading to a situation that could not be tolerated for long. Soon enough, women were awakening to a consiousness of their position, and the importance of the economic emancipation was at once manifested in their demands for a wider sphere: the right to individual, including political, independence and self-determination, the demand for higher education and training and the agitation for the admission of women to industry and the professions.

Although many of these demands have been met rather successfully, enabling women to take their proper place in the affaires of the world and eroding the primal position of men within the economy, the fight is far from being over. Still their new position in society, that it is accompanied by new ideals of economic independence and self-determination and can only be perceived as a real advantage for society since it releases

previously suppressed energies and human resources, is not altogether equal to that of men.

3.2.4.2. Women and work in today's economy

"*Human development, if not engendered, is endangered*" is the simple but far-reaching message of the Human Development Report 1995.[40] According to the report, in no society do women enjoy the same opportunities as men and although every country has made progress in developing women's capabilities, women and men still live in an unequal world. Women suffer more severly from poverty than men - of 1.4 billion people in poverty, 70% are women. They normally receive a lower average wage than men, mostly because they hold low-paying jobs or work in the informal sector but in part because they are sometimes paid less for equal work. All regions of the world record a higher rate of unemployment among women than men. And while in developing countries, women still constitute less than 15% of administrators and managers, they occupy only 10% of the parliamentary seats and hold only 6% of the cabinet positions.

During the last twenty years, the educational and health gap between men and women was closed considerably, but the disparities concerning equal economic and political opportunities are still prominent. Women enjoy in all regions of the world a considerably longer life-expectancy at birth than men, ranging between plus two years in developing countries and plus eight years in industrialised countries. Secondary school enrolment of women is now 78% of that of men in developing countries and increasing, while as many women receive secondary or tertiary education in OECD countries as men.

[40] UNDP (1995): Human Development Report 1995. P. 1.

And yet, the economic position of women is far inferior to men's. Much of their work remains unrecognized and under- or unvalued, exerting a strong impact on the status of women in our society and their reduced opportunities in public life. The main problem resides in the consequences of an economic system that does not value non-monetarised attributions. If the unpaid and in economic terms unvalued contributions of men and women to our economy were recognized, there would be far-reaching consequences for social and economic policy and social norms.

Especially women attribute greatly to the non-monetised and non-monetarised parts of our economy. It is estimated that about two thirds of total female time dedicated to economic activities, whether remunerated (monetised) or not (non-monetised), remains invisible to the system of national accounts. The same share of men's activities that does not show up in national accounts is assessed to be only one third to one fourth. As a consequence, much of women's work remains not only unpaid but also unrecognized. If the non-monetised activities of men and women were included to compute their respective attribution to the economy, we would discover that women work more hours than men in nearly every country. In developing countries women carry on average 53% of the total burden of work and in industrialised countries 51%. It is obvious that men receive the lion's share of income and therefore greater recognition for their economic contribution.

This gender division should disappear with the introduction of a new economic system that takes into consideration non-monetarised and non-monetised activities. Only when we begin to value unremunerated contributions to our economy as much as remunerated ones, will we be able to fully recognize women's share of work and their role in our economy.

3.2.5. Industrialised versus developing countries

3.2.5.1. Situation and comparison

According to the Human Development Report 1995, only 22% of the total population live in industrial countries, whereas the developing regions of the earth account for the large remainder, 4.2 billion persons of a total approaching rapidly the 6 billion mark. The estimated annual population growth rate until the year 2,000 for all industrialised countries is just 0.4% in comparison to 1.8% for developing countries.

Even though the population is unbalanced in one direction, the share of industrial GNP is balanced the other, developing countries obtain only 16% of the world's income. The world today is richer than ever before, since 1950 global income increased nearly five-fold from a previous $4 trillion to $23 trillion in 1992. Even if we adjust for population growth during this period, in per capita terms it more than tripled.

Also the structure of world income generation has changed significantly. The contribution of the agricultural sector has not only declined in industrialised countries but also in developing regions by about a third during the past thirty years. And yet, still over half of the labour force works in this sector in the developing countries, while in the industrialised world it is the service sector that is approaching the 70% level. Even the historically unprecedented phase of high economic growth since the last world war could not prevent high unemployment. During the last thirty years, employment has consistently lagged behind economic growth in some regions. The world as such is facing a large shortage of jobs, 35 million people unemployed in the industrialised regions and the need for one billion new jobs in developing countries during the next decade.

We still live in a world characterized by hunger, poverty and increasing disparities: Almost a third of the population of developing regions subsist below the poverty line, thirteen times more than in industrialised countries. The 31 poorest countries of Africa exhibited an average annual real GNP per capita growth rate of minus 0.3% between 1965 and 1985.

Nevertheless, the developing world has witnessed unprecedented improvement in human development during the past three decades. It was possible to close the gap just a little further that still remains so prominent between itself and the industrialised regions. The life expectancy, a crucial measure for human welfare and health conditions, is now 17 years longer than it was back in 1960 and infant mortality has been more than halved. However, at the same time, we have to observe that more than 90% of the 17 million HIV-infected people live in underpriviledged regions and about 17 million persons die every year from infectuous and parasitic diseases, such as diarrhoea, malaria and tuberculosis.

The world also faces great environmental threat in the form of continual degradation. As many as 70,000 square kilometres of farmland are abandoned each year due to this cause and about 4 million hectares of rain-fed cropland are lost annually to soil erosion. In Europe, 475,000 square kilometres of forest area have been damaged by air pollution, causing an economic loss of abour $35 billion a year.

A comparison of the level of productivity shows, that less developed countries suffer from relatively low levels of labour productivity. This can be explained by the absence or severe lack of complementarity factor inputs such as financial capital, adequate legal framework and/ or experienced management. Poor nutrition and low standards of personal hygiene with a higher risk of sickness could be other explanations.

If we wanted to characterise the situation in one short sentence it would read as follows: Despite considerable improvements in human development in developing countries prominent disparities, mainly at the economic level, still prevail, but rapid human progress and the concentration of efforts on essential targets should be possible and close the gap in the future even further.

3.2.5.2. Outlook

It is obvious that with developing countries we are facing a highly dynamic society with all the implications. The key challenge for global, and especially in the under-priviledged regions, development for the next decades will require global but focused and concentrated efforts. The main challenges include reducing population growth since one of the main sources for poverty resides in the fact that all economic achievements are cancelled by an immense growth rate. Family planning services and help in these matters should be made available for all willing couples. Other challenges are the provision of basic social services to all deprived people and the acceleration of job-led economic growth. It is importnat to create an environment conducive to evenly distributed economic growth, particularly by destroying trade and investment barriers, and making global arrangements for alleviating poverty and improving the physical environment.

As a precondition for future development, primary and secondary education in developing countries has to be furthered with no gender discrimination. The adult illiteracy rate, that today is still much too high with only 68% of the population in all developing countries and a meagre 47% in the least developed ones knowing how to read. Those 130 million children

at the primary level and more than 275 million at the secondary level that are out of school have to return.

The severe malnutrition has to be battled, since nearly 800 million people who do not get enough food and 500 million who are chronically malnourished are way too much. And the provision of safe drinking water and sanitation is one of the most pressing issues.

It is hard to say what is to be done first and even harder to assess the very limited means available for helping the developing regions of the world to catch up with the industrialised countries. But the developing regions provide great opportunities if they can be freed from some fundamental constraints to their future development.

3.2.6. Horizontal and vertical transfer effects

When analysing transfer effects of revenues, we have to differenciate between horizontal transfers, i.e. within one age-group or working generation (intra-generational), and vertical transfers, i.e. from one age-group to another (inter-generational). The inter-generational dimension has in itself two different aspects, one being the comparison of one generation with the next at a given moment in time, the other one being the relation of one generation to itself in different periods of time. Usually, in economic analysis the former, so-called cross-sectional approach is predominantly used. We have to bear these differences in mind when investigating transfer effects.

The distribution of money income among the population is very different in various countries. The income share of the richest fifth of the population has on average between 1980 and 1992, according to the United Nations, been 3.9 times that of the poorest fifth in Poland, 4.3 in Japan, 5.8 in Germany, 7.5

in France and 9.6 in the UK and the USA. There is no exact definition of how the income should be distributed within a society, but growing disparities are generally perceived as undesired. Unfortunately, many countries are experiencing just that situation where the rich get richer while the poor get poorer. The US Bureau of Census has estimated that in 1967 the top fifth of American families had incomes that were 7.3 times as high as those of the poorest fifth. In 1972, this ratio had increased to 7.7, reaching 8.0 in 1977, 9.1 in 1984, 9.7 in 1989 and is still growing. In many developing countries, the situation is still worse as there are regions where the lowest 40% of all households receive sometimes less that 10% of the total income, pushing the top-bottom-fifth income ratio to up to 30.

Most governments try to achieve more equal distribution of income through various measures like progressive and other taxation systems and social welfare provisions. It is, however, a constant subject of debate among economists how, and in the extreme whether at all, income should distributed. Since theories on the optimal income distribution are normative rather than positive, setting a distributional objective is no less than formalising one's ethic view of how a society should look like. Neither utilitarian nor maximin approaches can provide a satisfying answer to this problem.

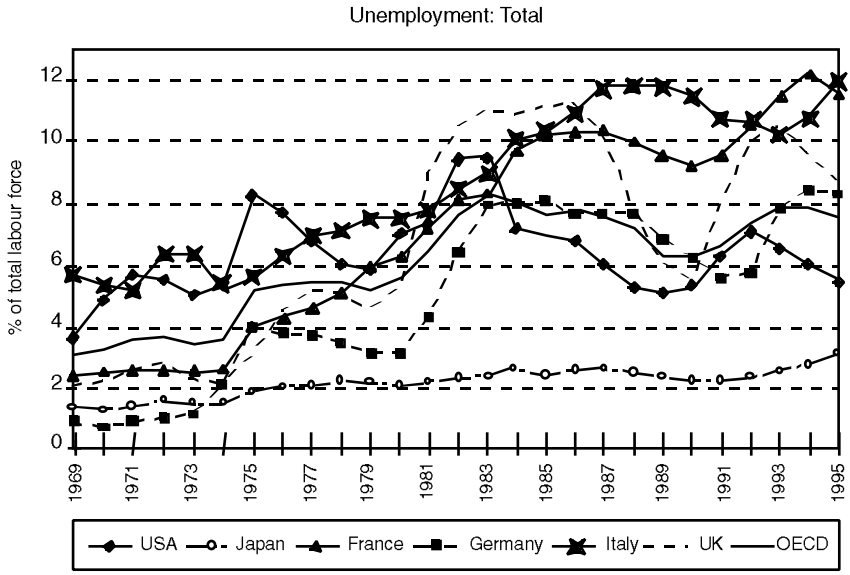
Inter-generational analysis, in contrast, does not suffer from this shortcoming. It is less difficult to compare the position of one generation to the previous or the next in terms of monetary wealth. From 1950 to the first oil shock in 1973, we experienced a period of nearly 5% annual growth on average in the OECD, nearly double the historic growth rate until then. It was a period of reconstruction and output, trade, investment and employment responded strongly to the positive economic environment. During these times, hardly any country had problems with inter-generational distribution since positive eco-

nomic development coincided with low dependency rates. But then, growth rates fell and major demographic changes led to a situation where increasingly less workers are to sustain an increasing number of retirees and unemployed. The question whether pension schemes are funded through a pay-as-you-go system or via capital accumulation and ensuing melting is relatively irrelevant since both systems are not immune to demographic changes.

Justice between two generations in a pay-as-you-go pension system depends on the ratio of past payments of today's retirees in comparison to their actual income to actual payments of today's workers in comparison to their expected income as pensioners. Capital accumulation systems are neutral in respect to inter-generational distribution only as long as there are no variations of the applicable interest rate. Changing demographics, however, do have an impact on interest rates as variations in the relation of accumulation to deaccumulation of capital determine interest rate differentials. As a consequence, both systems suffer from an ageing society with increasing old-age dependency rate: pay-as-you-go systems directly and capital accumulation systems indirectly. Future workers will be worse off than their parents since they have to contribute more while expecting less from the pension system. Longer years of remunerated work and/or higher contributions to the pension system will have to compensate for the risk of increasing life expectancies.

3.3. The problem and treatment of unemployed (of paid work)

3.3.1. The anatomy of employment and unemployment

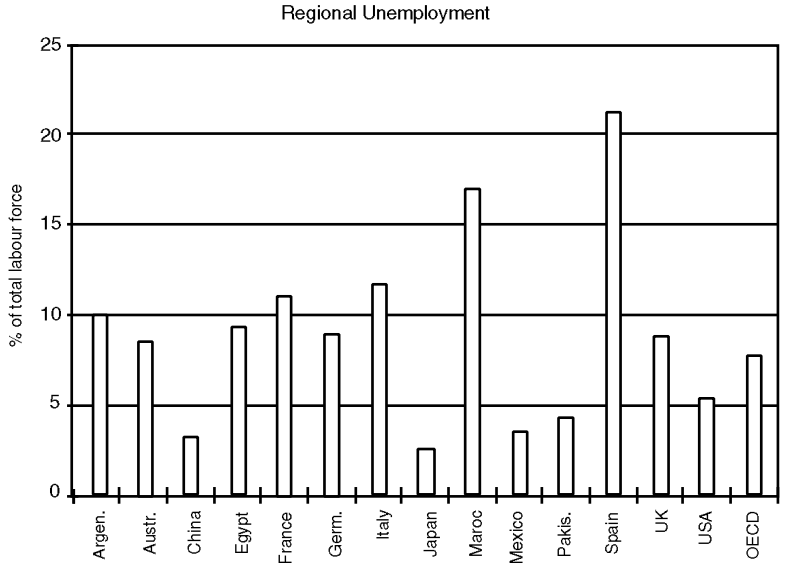


Unemployment Rates from 1969 to 1995

Source: OECD

In this decade, more people are and will be unemployed in industrialised countries than at any time before, in total approximately 35 million or about 8.5% of the labour force, according to the OECD. Such high levels of unemployment are not just a function of a growing labour force nor are they historically normal. During the years after the Second World War and until the early 1970s, unemployment was not a pressing problem since it affected on average less than 10 million people, without any major upturns. Within one decade, from 1972 to 1982, and as a consequence of the two oil price shocks in 1973 and 1979, the number of unemployed people suddenly tripled, reaching 30 million for the first time. A strong econo-

mic expansion during the 1980s brought some relieve but largely failed to bring down the jobless total to previous levels. With almost 35 million people out of work officially and a number of jobless that are not accounted for, this upward trend seems to be unbroken. It reflects both human distress and economic inefficiency and undermines social cohesion and confidence in market mechanisms and democratic institutions.



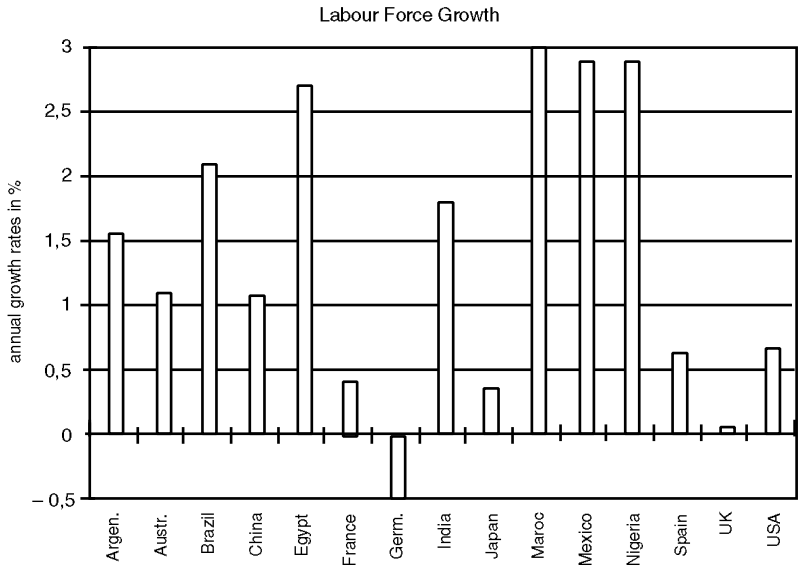
Regional Unemployment Rates

Source: latest OECD, ILO

As we can see, not only are there significant variances of unemployment in time but also in the different regions of the world. Whereas some countries currently experience rather high labour force participation and suffer only from what is sometimes called the inevitable rate of unemployment (including e.g. people who move from job to job), most of them are in distress due to the fact that they are facing significantly higher rates. Every percent point of unemployment (above a minimal inevitable rate) manifests the underperformance of the eco-

nomy in question. We have to avoid this underperformance if we are willing to provide people with a job.

Unfortunately, we cannot expect time to solve the problem for us since the demographic evolution is applying increasing pressure on labour markets. In most countries the annual growth rates of the labour force are expected to remain at significant positive levels over the next years. And where the demographic situation leads to a contraction of the labour force like in Germany or Switzerland, thus providing some relieve on labour markets, the legal frameworks will probably be changed to include a larger proportion of older workers, negating this effect.



Estimated Annual Labour Force Growth Rates until 2000

Source: ILO

In the course of the last century, it was usual to have to work at least 12 to 14 hours per day and up to 6 or even 7 days a week. Today, the average work time is only a fraction compared to what it was a century ago, given that the current average working week in non-agricultural activities of most indus-

trialised countries does not significantly surpass 40 hours: United States: 34.7, Germany: 38.3, France: 38.9, according to the ILO. Considering also holiday time and other benefits like accident and sick leave, it seems that we are working only part-time in comparison to our ancestors. If we also bear in mind, that not only the weekly or yearly work times have been reduced but also the number of years we work today, the total lifetime amount of remunerated work carried out by the average employee is just a fraction of what it used to be. This is especially true if we consider the relative monetised work years to the expected life-span. And still, even this prominent division of labour cannot secure a job for everybody.

In addition to this development, the mind-set of the Industrial Revolution has totally excluded from the notion of productive employment for global wealth non-remunerated and self-production-consumption activities. If there is any sector where the word sustainability has unquestionable relevance and meaning it is clearly here. It is especially relevant in the light of current trends, including the longer life expectancy, and situations: unemployment benefits, social security and health costs, and their increasing level of un-manageability.

Whereas many countries in Asia and elsewhere still benefit today from a situation which in part pertains to earlier stages of Industrial Revolution, the mature industrial countries are facing significant unemployment problems (in respect, that is, of monetarised productive activities). At first sight, there appear to be two processes running in parallel. On the one hand, the will to maintain as far as possible the social welfare system by trying to provide an income even to those who do not work. And on the other, the trend towards dismantling more and more the Welfare State or at least towards basically reform it while frequently proposing that the market determine the salary at which people find a job. In the first instance, there is a problem

of financial consistency and equilibrium. In the second, the problem is that providing everybody with a job will mean levels of remuneration that in fact condemn a growing proportion of the population to live under the poverty line – America's "working poor" could serve as an unfortunate example.

It would seem only natural to strike a compromise between these two tendencies wherein people would begin to settle for a lower level of monetarised economic wealth. In support of this is of course the idea that public entitlements discourage initiative and willingness to work and have dangerous moral hazard effects. These are serious questions which must be clearly quantified through very detailed analyses of living conditions.

The drawback of this idea, which in reality means trying to "muddle through", is that it paints a very negative picture for the future, in two ways: First, the vast majority of the population will see the quality of their lives diminish and drop below the poverty line. There are already about 1.4 billion people living in poverty and even 100 million of these in industrialised countries. And second, the gap between rich and poor will widen. During 1965-90, world merchandise tripled, and trade in services increased more then fourteenfold, but the poorest 20% of the world's population benefited very little, their share in world-trade being only 1%. But also the disparities within the industrialised countries are increasing, where the poorest 40% of households receive only 18% of total income.

All this contrasts starkly with the notion that the potential in today's world for increasing wealth and welfare is greater than ever before. When all is said and done, the situation created by this compromise, based as it is merely on extrapolation of current trends, can hardly be said to be satisfactory. It is at this point that our report to the Club of Rome attempts to open

the way towards a more positive and active social and employment policy.

3.3.2. Unemployment and social policies

Since nearly all industrialised countries are experiencing a situation of unemployment rates, that are considered to be too high, they are adopting different measures to combat this anwanted condition. The set of active labour market programs contains four general categories: mobilising labour supply, developing employment-related skills, promoting a spirit of active search and direct job creation.

The first, mobilising labour supply, comprises programmes that aim to improve the chances of productive employment for hard-to-place persons, who would otherwise probably remain idle. This involves training for unemployed adults and in some cases for those at risk, special measures for unemployed youth and rehabilitation of the disabled. Another strategy is the granting of subsidies to regular employment in the private sector and to persons starting their own enterprises. The national expenditures for mobilising labour supply in most industrialised countries have increased during the last decade to around 0.5% of GDP, although they display great variations: the anglo-saxon countries spending only a fifth of Sweden or Denmark.

The second activity, developing employment-related skills, falls mainly in the responsibility of employers and a country's education and training system. In areas where training opportunities are judged to be insufficient, labour market policy can play a complementary role. Nevertheless, there seems to be a trend towards increasing the training element of labour market policy, which has primarily affected the afore-

mentioned targeted measures of mobilisation. But in some countries, some broader schemes have evolved that comprise training for adults, regardless of their employment situation, and apprenticeship and related forms of general youth training.

The third policy goal, the promotion of a spirit of active search, aims to enhance the processes in which job-seekers and potential employers come into contact with each other. This matter has led to activities that involve new methods, organisational changes or the allocation of additional resources to encourage and foster new relationships between the two parties. Employment services provide the backbone to this aim, and although they are relevant to all workers and employers, they mainly focus on the needs of unemployed workers, often with special efforts for long-term unemployed.

The last category is the direct creation of jobs, either involving temporary work, or in some cases, regular jobs in the public sector or in non-profit organisations. This very general and largely unfocused activity has seen a decline during the last ten years in favour of other measures that more specifically mobilise labour supply for remunerated work. The general perception was that direct job creation proved expensive while at the same time demonstrating only questionable efficiency.[41] It, nevertheless, plays an important role in the case of disabled persons, who might need special work adjustment measures and training.

There are several problems that affect social policies and the unemployed. Besides the uncertainty about different measures and their success or the question of funding the unemployment programs, another one is the strict definition of the labour force. It excludes parts of the society interested in re-

[41] Cf. e.g. OECD (1994): The OECD Jobs Study. Parts I and II.

munerated work and does not provide an ideal measure of the complete labour supply potential. Some excluded persons are engaged in other forms of productive activities like education or volunteer work, others may not wish to join the labour force under present conditions and again others would like to do so but are unable, for example, for health reasons or parental obligations. Especially for women the non-participation rate in the labour force is high, despite the fact that it is generally falling while that of men remains more or less stable.

The question of finding adequate solutions to fight unemployment is also always linked to the controversy about the extent of labour market regulation. After more than two decades of increasingly tighter legal framework and stronger involvement of governments and governmental institutions, the perception of the optimal set of rules has changed. First starting during the 1980s in the United States and the UK and from there spreading over to many other early-industrialised countries, there is a trend towards reducing interventions on labour markets. Especially the European model of the welfare state with high wages, high social security, low poverty, but at the same time high unemployment rates has received some criticism lately. It is often compared to the American model where income is distributed less evenly, minimum wages are much lower, poverty more widespread but unemployment rates have been consistently lower than in Europe.

The Competitiveness Advisory Group states that *"the European social model does need to be reviewed and modernised so that it can better cope with the profound economic, social and demographic changes taking place throughout the world economy"*.[42] While we wholeheartedly support this view, we

[42] See Competitiveness Advisory Group (1996): Third Report to the President of the European Commission, the Prime Ministers and Heads of State – June 1996. P. 10.

feel at the same time, that not only the European social model is partly inadequate and has to change, but that of most countries in the world as well, including the United States. While the question of how much labour market regulation or deregulation is a political one and comprises many moral and philosophical aspects, that cannot be mathematically optimised, the need for new solutions to the current unemployment dilemma is unquestioned. It is, however, not a question of left or right nor of European or American or Asian current solutions but a call for new approaches, theories and their application.

3.3.3. Incentives and moral hazard effects of unemployment benefits

Most industrialised countries have arrangements that permit the payment of unemployment benefits in one form or another for different periods of time to most groups of unemployed people. Some schemes offer all eligible individuals the same fixed money sum while others tie the level of benefit to an individual's previous earnings and replace a certain proportion of these, usually subject to an upper ceiling. The entitlement rules vary considerably from one country to another but usually involve a minimum time of more or less regular contribution and a disqualification or reduction in the case of voluntary redundancy. Unemployment benefits are subject to eligibility conditions which state that claimants must be available for work, willing to work and co-operate with the public employment services.

The rationale for unemployment benefits is to relieve people who have lost their job through no fault of their own, hence voluntary unemployment is usually excluded, from immediate financial concerns, thus allowing for more efficient job search. These benefits, therefore, have an economic as well as

a social equity objective, e.g. in reducing poverty among the unemployed and cushioning the adverse effects of high and rising unemployment.

With unemployment rates often approaching or, in unfortunate cases, exceeding 10%, the relatively generous provisions have typically led to expenditures in the order of 2% of GDP for income maintenance. These comprise all forms of cash benefit to compensate for unemployment, except early retirement. In addition to unemployment insurance and assistance, this covers publicly-funded redundancy payments, compensation to workers whose employers go bankrupt and special support of various groups such as construction workers laid off during bad weather.

While on the one hand, public employment services provide many incentives to attract people back to the labour market, helping them in their search for a new job, on the other hand, generous provisions always entail a certain risk of moral hazard and abuse, and may even lead to benefit fraud. The unlawful actions include false declarations, claiming benefit while not being available for work, not actively searching for work as required by legislation, non-declaration of earnings from casual work by benefit recipients or multiple claiming of benefits to name just the more common. The public employment services tries to enforce eligibility for benefits effectively through adequate control and other measures, thus preventing to a certain extend improper or illegal actions on part of the unemployed. Specific acts like the refusal to take up suitable work, in some cases even if at a lower qualification level than desired by the unemployed, or the rejection or non-attendance of training courses usually lead to temporary and upon repetitive refusal to permanent suspension of benefits.

The problem of moral hazard is substantially different from benefit abuse or fraud. It occurs when individuals change their behaviour due to the existence of an insurance or benefit system in such a way as to become or stay eligible without infringing the law. In many cases an individual's employment status is under his control, since a worker's behaviour can influence the chances that he will lose his job. Similarly, an unemployed person can control the intensity with which he seeks a new job while receiving unemployment benefits. People might behave in such a way as to gain from becoming or staying unemployed. This gain not necessarily has to be in financial terms, since individuals could opt to accept more leisure time and reduced compensation through the benefit system instead of less leisure time and higher income through remunerated work.

The question of whether and to what extent the moral hazard problem of unemployment benefit systems is prominent cannot easily be answered since these systems are multidimensional and difficult to characterise in a single indicator. But it seems that higher replacement rates, the ratio of income which is received when unemployed to that which could be received in employment, correlate positively with longer duration of unemployment.[43] Some studies have concluded that there is, others that there is no cross-country correlation between unemployment benefits and aggregate unemployment, thus largely ruling a moral hazard effect out. However, negative findings may be misleading because simple measures of benefit generosity have been used, because there might be a reverse causality present or because cross-country relativities in unemploy-

[43] See e.g. Meyer, B. (1990): Unemployment Insurance and Unemployment Spells. NBER Working Paper 2546. Or Johnson, G./ Layard, R. (1986): The Natural Rate of Unemployment. In: Ashenfelter, O./ Layard, R.: The Handbook of Labour Economics.

ment rates have changed considerably during time.[44] The OECD concludes that although earlier research did not detect a significant cross-country correlation between benefits and aggregate employment rates, more recent regressions, modelling unemployment as a lagged function of benefit entitlements, suggest that replacement rates and duration of benefits affect unemployment rates. They also report that high benefit entitlements may not only affect long-term unemployment but may encourage short employment spells, voluntary job-leaving, and involuntary part-time unemployment. It appears as if the moral hazard problem were inherent to the actual unemployment benefit systems and not neglectible.

[44] According to OECD (1994): The OECD Jobs Study. Part II, chapter 8.

4. Productive work and activities in the new context of Service Economy

4.1. Producing value and developing the wealth of nations

4.1.1. The new reality in the production of wealth

When Adam Smith searched to define the ways and means to develop the wealth of nations and tried to detect how value is produced, writing the first book in economic theory, he was reacting to a transformation of the society around him: the appearance of the Industrial Revolution. His problem was not so much as to find out what was the dominant situation of the society, but what was the most dynamic element which would allow to increase the wealth of nations and as such fight against poverty, hunger and deprivation. Industrialisation, although a relatively small phenomenon at the time, was the key to future developments to efficiently reduce scarcity, which was both an economic and a morale imperative. He was right then and has been right for two hundred years, but his ideas will unfortunately not be appropriate to tackle the problems of the new transformation process whose beginnings we are experiencing right now.

The basic notion of economic value was linked in the past to productive activities and work, both measured with a monetary yardstick. The rising importance of services as intrinsic part of the production system was still unknown and the impression of scarcity and the continuous struggle to fight it had made it difficult to accept the idea that improved industrial processes could provide efficient solutions. So far, economic crises were usually linked either to overproduction or to real in-

flation, periods of war being the only notable exception. The explosion of the industrial manufacturing process, a consequence of the enormous technological and scientific advances, as it entered the era of mass consumption during the third decade of this century was the main reason for a change in economic theory. The assumption that supply was definitely elastic spread in the world of economists and the notion of value switched to the demand side, essentially through the impact of the works of Keynes and Hicks.

Today still, the new neoclassical schools, even those who consider themselves as supply-siders, are conditioned by this paradigm. But in the 1970s, economic reality started to move in a direction which was no longer a mere extension of the trend that had started two centuries earlier. For the first time, in the advanced industrialised countries, inflation started to accelerate without the influence of war-time economic disparities. This phenomenon was clearly due to unforeseen developments affecting supply rigidities but was not recognised as such.

The Club of Rome played a role, largely unconscious, in this process. Because of its acceptance of the idea that growth could slow down, the first report of the Club was criticised by a large majority of economists the world over for not having understood that, thanks to the progress of science and technology, supply could remain elastic more or less at will. Here is where the devil in the guise of a passing trend found his way to into the mind of economic analysis.

In fact, little by little, the growing obsession with inflation forced certain institutions like central banks, to concentrate on the fight to control it. As a result, they first had to achieve a degree of independence from official government politics. Secondly, they started to control the quantity of money in order to master inflation and in so doing, admitted implicitly that

supply was limited by rigidities. It is because of this development that we suffer in current economic policies from a kind of schizophrenia: de facto, the monetary authorities reduce economic activity in order to control inflation; and yet, the official discourse of governments and of many economic commentators refer to variations in demand as basis for stimulating economic growth. Hence, the great uncertainty regarding the rationality of economics as a social science today and a general anxiety about our economic future.

The first questions we must ask ourselves then are how, in the production of wealth, have the conditions of supply systems changed and how and why it is so that technological advance does not seem to maintain a great elasticity of supply. The answer can be found in the practice of economic activity itself, provided we cast off certain preconceptions which distort our understanding of facts of production.

Puntos de controversia

8. Measuring wealth: the notion of value

Economics was born, as a specific discipline separate from other social sciences, the very day when Adam Smith was able to define a goal for economics and, at the same time, suggest a method to measure the efforts to achieve it.

The broad goal was the development of the wealth of nations. It could be achieved by harnessing the potential of the burgeoning Industrial Revolution that was even then taking place. The important point was to increase the capacity to produce material goods through the use of new tools (provided through capital accumulation and investment) and the contribution of labour. This process could be measured because factors of production, capital and labour, were remunerated for their contribution. This process of production could be expressed by an added-value which itself represented the measurement of a flow.

It was, in fact, considered that the flow of manufacturing production was under all circumstances adding to the stock of wealth and as such constituted the most efficient method of wealth creations. For about two centuries, indeed, this proved to be the case.

But the moment when service functions became more important in any wealth producing process than pure manufacturing functions, this definition of value ceased to be valid. With added-value, the production of a material product, sold on the market at a given time, provides the definition of its economic value. This is correct where strictly material goods and processes are considered: a table, a kilo of potatoes, a horse.

But when technological development contributes to produce increasingly complex systems, it increases the need for service functions which are essential to making any material tools or goods usable. As a consequence, the increase of wealth has to be measured regarding the performance of systems. Such performances cannot be identified with the mere existence of a material good.

In the Industrial Revolution System, the increase of wealth can be measured by the increased number of goods bought. With performance, however, as for instance with a person's state of health, the fact of being richer or

in better shape can no longer be equated with greater volume of medical products being bought and utilised. And this is increasingly the case when a greater number of services are integrated into the utilisation phase of any good.

Therefore, when service functions started being more important in terms of costs and utilisation of resources than pure manufacturing functions, a very fundamental change was taking place. Value- added measures a flow or rather its cost, but does not necessarily measure, as was supposed during the Industrial Revolution, an equivalent increase in wealth. It should, in passing, be noted that the converse can also occur: wealth can be increased much more by non-monetarised* performances of the industrial system, as for instance when relative prices in the information business go down.

It should be clear that the discussion of the notion of wealth is today of paramount importance to identifying which productive activities actually contribute to the wealth of nations. Such understanding would make the task of defining credible and efficient employment policies a much simpler one.

* Just to remind the reader of the terminology: «monetarised» refers to systems where some form of exchange has taken place either for money (monetised) or not (non-monetised) but using implicitly a system of reference; «non-monetarised» refers to systems where no exchange at all takes place: basically self-production systems.

4.1.2. The wealth of nations in form of Nature's Dowry and Patrimony

In our current evaluation of the economy we generally refer to the gross national product and its rate of chance from one period to another as the gauge of additions to economic wealth and welfare. This system of evaluation, nevertheless, has some serious drawbacks, one of them being the negligence of our en-

vironment as an important variable of stock in this equation. In some cases, and it seems that the number of these cases are increasing, so-called economic growth does not produce real growth in wealth and welfare. It sometimes even leads to situations in which a net addition to GNP can produce a net real reduction of wealth and welfare.

Any good that is freely available like fresh air has no price and, as a consequence, according to economic theory no value. The destruction of freely available goods in the production process therefore does not diminish GNP nor reduces the economic growth of wealth and welfare. But it obviously reduces factors that contribute to real wealth and welfare. Here lies a major contradiction since a system that started out to produce more in order to increase wealth, could achieve exactly the opposite, producing more scarcities. Goods that become scarce have less value in terms of real wealth than when they were in virtually unlimited supply. Our economic system, however, does not account for this, because only priced goods have an economic value. Until a good becomes scarce and therefore priced its real value is not recognised and an original amount or stock is not accounted for.

It seems paradox that a society where access to drinking water is restricted and people have to pay for it appears to be richer than one where drinking water is freely available. But it is the ultimate mockery of our economic evaluation of growing wealth and welfare, that a society that first pays for digging a hole and then pays for getting it filled again should be richer than the one that never engaged in such idiotic task. We therefore have to find a way to assess the value of original stock, the value of nature's dowry and patrimony to us. Whenever we engage in the task of producing scarce goods we have to take into consideration not only the effects on other already scarce go-

ods, but also the changes caused in freely available goods and especially our environment.

4.2. Integrating the monetarised and non-monetarised activities

Up to the beginning of the Industrial Revolution, the majority of resources which was produced and consumed, mainly in the agricultural sector, was related to a system of self-production and self-consumption, a non-monetarised system. As we have already seen, the Industrial Revolution accelerated the process of specialisation and therefore of exchange. The process of exchange affects – as already explained – what we have termed the monetarised part of an economy, where the value of goods exchanged is either implicit (non-monetised) or explicit (monetised) with reference to the value of what we call money. Keeping these distinctions between monetised, non-monetised and non-monetarised in mind, an essentially agricultural society can be defined as predominantly non-monetarised, whereas when commercial exchanges take place, only a part - at least at the beginning of the process - is specifically monetised.

The fundamental importance of money in the economy is relatively new, albeit the history of money has very ancient origins: obviously, different forms of it have existed since prehistoric times. But they were then far from dominant in the “economic” process. It was with the development of the Industrial Revolution that money became the essential tool to organise the new production system. It was necessary to have a developed commercial system functioning, as the case of England in the outgoing 18th century, so that part of the flow of money could be saved, and transformed into capital for investment. This was absolutely necessary because the new production tools, increasingly important and costly, needed more invest-

ment. What at that time was still considered a marginal phenomenon was in fact the key and the most dynamic tool to develop the wealth of nations: the manufacturing system based on investment and therefore linked as such to the monetarisation, and even more to the monetisation of the economy. Herein lie the roots of an economic research that, up to the beginning of this century, focused on the question of productive employment as the one essentially connected to a remunerated activity within the settings of the industrial production system. Other activities, especially services and all forms of self-production and self-consumption, were regarded as socially equitable and noble, but subordinate.

Although this new reality of production has helped two centuries ago in a powerful way to create the modern world where, despite all the terrible crises and setbacks in history, a substantial step forward has been made for the wealth and the welfare of people, a legitimate question may be risen: How far are all these basic assumptions valid in a situation in which services have become the key and greatest part of the production function itself? Should we not overcome the traditional notion that productive employment, in fact that the notion itself of employment, is linked still today essentially to this process of monetarisation?

The success of the development of productivity and industrial production has created a very paradoxical situation. Already at the start of this century, Arthur Pigou, the pioneer of welfare economics has shortly touched one of the shortcomings of the economic system in this sphere without necessarily arriving to further conclusions. He reflected on the fact, that if a bachelor employing a woman as a housekeeper were to marry her, national income would fall, since her previously paid work would now be performed unpaid. But unremunerated work and the concepts of non-monetarised and non-mone-

tised parts of the economy go far beyond housekeeping and its omission leaving a gap in national income accounting. We can also observe the fact that where service activities are the key issue, the monetarisation and/or the monetisation system does not necessarily always produce the net positive results which were obvious in the classical period of the Industrial Revolution.

Let us consider the case of health costs: The developments in the capacity of drugs, doctors and instruments to ameliorate health, which was also possible thanks to the Industrial Revolution and to the monetarised systems, has undoubtedly brought decisive advantages. On the other side, when today the high costs of hospital treatments stimulate policies to convince patients to rather stay at home, it is obvious here that the non-monetarised as well as the non-monetised system is called upon to rescue us against an implicit level of inefficiency of the monetarised system. It is clear that women's work is a social conquest, but it is also clear today that the care of children can be alternatively or in a complementary way solved either by developing, for money, a system kindergartens and/or through the mobilisation of grandmothers or grandfathers who can do the equivalent job for free where the conditions of the family allow such solutions.

Why is the work done by specialised people in the kindergartens part of the productive work, which adds to GNP, whereas the equivalent work of the grandmothers or grandfathers is not? It would seem that in many areas the non-monetarised is called to come to rescue to what seems to be the limits of efficiency, in some cases, of the monetarised organisation of the economy. Can we therefore still divide the notion of productive employment between what belongs to the official monetised economy and on the other side the performance of activities, which can be defined productive from a social and

even from an indirect financial point of view, but which are not recognised as such?

In the Service Economy, it would appear that the link between monetarised and non-monetarised activities is one of interdependence and that a growing part of these non-monetarised activities, are in fact a form of productive work in the sense of contributing to the wealth of nations and in some cases even as an essential element in the functioning of the monetarised world itself. Albeit there is probably a question of optimum equilibrium of the monetarised and non-monetarised activities, it has to be recognised that their mutual integration and the resulting synergies are becoming more and more important.

Puntos de controversia

9. Productive activities in the Service Economy

In the pre-industrial economy, productive activities which made man's material survival possible, were performed within what were essentially self-production and self-consumption systems. Specialisation in trade, growing through the ages, has open up the way to the Industrial Revolution. At this stage, the priority has been to develop the production system in a monetarised society where the major productive activities were remunerated. Since that time, because of the strategic importance of this priority, employment and productive activity have almost exclusively equated with employment in the sense of remunerated activity. Of course, other types of activity (both self-production and non-remunerated exchange-based activities) have meantime continued to exist but were never included in the growth arithmetic of the Industrial Revolution. With the Service Economy, however, and its emphasis on performance, it becomes perfectly clear that the creation of wealth during the utilisation life of products and services, must inevitably involve certain forms of self-production and non-remunerated work as a necessary contribution to the functioning of the whole systems.

This is particularly the case with the mature economic situation achieved by certain industrialised countries, where many activities based essentially on remunerated work become increasingly less efficient, and where more and more of the production process is transferred to the consumer, who is expected to make a free contribution to performance. A more obvious example of this phenomenon is self-service in the utilisation of practically all services offered on the market today: from restaurants, repair and maintenance systems, banking counters to education and health maintenance systems. Furthermore, because cost in the performance of systems have to do with their quality of operation, it becomes clear that "quality" is to the service system, what "productivity" was to the industrial system. With the service economy, quality has ceased to be an abstract and imaginative concept. For, quite on the contrary, the enormous costs in money and effort of something not working properly is all too real. In the modern Service Economy, therefore,

when one speaks of productive activities, performing efficiently, or yielding satisfactory results, one is referring not only to the contribution of remunerated employment (the exclusive reference of the Industrial Revolution) but also to the contribution of self-production and voluntary activities. If wealth is obtained in this way, then it is equally clear that any strategy for developing employment and productive activities has to promote all three modes of production in parallel.

4.3. Recognising the economic value of non-monetarised activities

4.3.1. The evolution of productivity of monetarised systems and their limits

One can of course focus on certain social and political factors which, although they are clearly important, could have been much more easily handled had the manufacturing process itself remained highly elastic thanks to technological innovations. Many economists who refer to themselves as "supply-siders" do exactly that. Unfortunately, this is not the case since the wishful thinking of many economists that economic development would detach itself from the law of diminishing returns through constant invention and innovation remained just that: wishful thinking.

All events and developments in sciences and human life are subject to the law of diminishing returns. The only exception to this law, believed to be always taken for granted by economists, was technological development itself which is often

believed to be free from such constraints. In particular, many economists went so far as to assert that market conditions would have enhanced our ability to break new technological ground whereas it is obvious that with the introduction of a science-based technology since the end of last century, that process was to remain largely exogenous.

In 1973, had economists and those active in industry been asked what new technology they would have liked to develop, they would doubtless have answered: a new energy technology capable of replacing oil or of producing it at a much lower cost. But this did not happen, and inflation soared. Instead, it was computers and informatics that really began to take off, things that in the world of 1973 would have been considered luxuries. It took ten years of energy scarcity for the economic system to adapt to the new conditions of supply. But by then, the push towards the great economic growth of the years between 1947 and 1973 had definitely weakened.

Points of controversy

10. The Paradise Paradox

This paradox has already been attempted to describe in a report to the Club of Rome entitled "Dialogue on Wealth and Welfare".* It goes as follows:

The paradise is usually defined as a place where people would live happily supported by an indefinite amount of freely available resources. No effort, labour or production would be needed so that economic activity as we have traditionally understood it would cease to exist. The immediate consequence would be that there would be no payment of wages and, as a result, an infinite level of unemployment would be obtained.

Industrial technological progress has been promoted and has brought us some way to achieving the goal of paradise. Indeed, increasing productivity through the production of goods (the electronics industry is a case in point) provides precisely an example of falling production prices. Extrapolation of these trends to industrial manufacturing as a whole could produce a situation of, on the one hand, great plenty and, on the other, of zero employment and zero availability of money.

As can be seen, the road to paradise is beginning to look very much the road to hell. And hell is, of course, the inevitable terminus of all extrapolation. This is an instance of the apparently rational driving us towards the most irrational of situations.

* Giarini, O. (1980): Dialogue on Wealth and Welfare.

The second issue concerning the rigidity of the supply system has to do with the fact that the increase in productivity in the manufacturing system has ceased to follow the trend we described above (i.e. the road to "paradise"). In fact, if, on the one hand, manufacturing processes themselves have been very successful, they have, on the other side, transformed all manufacturing industries the world over into production systems where services of all sorts are using up to 80% of all economic

and financial resource allocations. R & D, storage, maintenance, control of vulnerabilities, financial activities, repair systems, monitoring, distribution, utilisation and waste management have become the key conditions of wealth production.

Therefore, systems for producing material goods have given way to systems in which increasing use is made of services not only prior to the manufacturing of goods but also during their production and particularly their utilisation, and finally at recycling or waste process stages. The logic of the price system in the market has also been completely transformed. Prices no longer result at a given moment in time from an equilibrium between supply and demand. Prices need increasingly to reflect costs which occur in the future downstream of contract definition during product and system utilisation and, subsequently, at the final recycling or disposal stage.

Management of vulnerabilities and uncertainties has thus become a key issue for the manufacturing process, for wealth generation, as indeed for society itself. This situation stems from two fundamental facts. First, thanks to technological developments and even to the growing ability of societies to organise, in many places around the world, the frequency of major disruptions has diminished, but because of the concentration of human settlements, of the quality of technology and of production activities as well as their interdependence, the negative results of any breakdown can be far-reaching and costly. The systems for the distribution of oil and fertilisers and the amount of money exchanged in the world today, are so vast that little variations increase the volatility of the system up to disruptive levels. Therefore risk management is at the core of any management problem today. And second, it must be emphasised that the price system itself is no longer based solely on the evaluation of production costs for final goods compared to the availability of solvable demand but has been

increasingly overtaken by a price system where many "production" costs depend on future events.

Hence, the general feeling that our world has become more uncertain. We are in fact learning to manage a system in much the same way as nature has built up and developed the human body from very simple biological species. Crucial to this process is the ability to organise, integrate and keep things going. Ultimately, the results can always be improved provided that vulnerability is kept under control. In this sense, the very notion of uncertainty offers a new way of looking at progress and is fundamentally the real opportunity for and key precondition of progress.

4.3.2. The non-monetarised activities

4.3.2.1. Non-monetarised activities based on implicit exchange values

Non-monetised activities based on implicit exchange values are all those activities that could be remunerated, i.e. monetised, but for one reason or another are not. We call them monetarised but non-monetised activities since there is a (potential) implicit value attached to them that could be calculated in monetary terms. It is mostly benevolent or voluntary work that falls into this category, but by no means restricted to charity work alone.

Many of those productive activities which are outside the market belong to this group, as in the case for instance of those grandmothers and grandfathers who exist by millions and take care of young children for their development and education. They will generally not be paid for their work, although it would be easy to identify the current market rate for each hour

of child attending and attribute it to their time spend accordingly. Another example would be the domestic duties, that in our world are still carried out mainly by women, but are in nearly all cases unremunerated and unvalued in monetary terms although they could be.

The United Nations have estimated in their Human Development Report 1995 that roughly 50% of all time allocated to work that is either monetised (remunerated) or non-monetised (all unremunerated activities with a market value) falls into the second category. Especially women account for the major part, over two-thirds, of non-monetised work. Although it is hard to compare the quantity of monetised and non-monetised work in monetary terms, some countries are dealing with this issue by developing so-called satellite accounts to register non-monetised work. If all unpaid activities with an implicit exchange value were treated as market transactions at prevailing rates - a rather strict and somewhat unrealistic precondition - they would yield huge monetary valuations. Under these assumptions, that can only provide a broad picture of the importance of non-monetised work in our economy, total global non-monetised output would be estimated at $16 trillion, about 70% of the officially estimated $23 trillion of monetised activities.

It is obvious that such an important part of our economy can no longer remain invisible to our methods of accounting. With the introduction of satellite accounts a first important step has been made towards the inclusion of non-monetised work into the framework of decision-making in our society.

4.3.2.2. Non-monetarised activities with no implicit or explicit exchange value of reference

The other very important group, that of non-monetarised activities, are those that have no implicit or explicit exchange

value. A “translation” into monetary terms, as was possible for non-monetised activities, is impossible. These are the non-monetarised activities in the stricter sense of the terminology, comprising all activities of self-production and self-consumption. Examples for this type of work would be self-education through the study of books or via computer programs, self-repair or self-healing activities. Most personal activities that cannot be delegated to third parties fall also into this category.

The monetary value of non-monetarised activities cannot be assessed since they reside outside our monetary system with no point of reference as to how and under what conditions they could be integrated or at least adequately related to another activity within the system. They form a vital part of your economy, yet they remain unquantified in monetary terms. The previous agricultural society was largely based on the efficiency of its non-monetarised work as most of the production was carried out in self-production and self-consumption units.

Today, we are evincing the come-back of these non-monetarised activities that during the Industrial Revolution were driven out by the concentration on monetised work. The innovation of self-service restaurants and the introduction of teller machines in banking, were previous monetised systems are abolished in favour of shifting the burden of work to the consumer. The consumer becomes part of the production process instead of being a totally separated entity. This phenomenon, described by Alvin Toffler as the “prosumer”, can be particularly well observed at the level of distribution and above all utilisation and finally recycling.

The more the consumer becomes a prosumer, we rediscover that the proper utilisation of systems has to do with an increasing amount of self-production and self-consumption activity, which is totally non-monetarised. It is here, at this level,

that we rediscover the economic value of what the classical Industrial Revolution has by necessity eliminated, that is the "economic" importance of non-monetarised activities. Learning how to use a computer or any other modern tool for ourselves, or any other sort of educational or practical activity which is developed in a self-production and self-consumption system, could be seen as a complementary tool to mobilise human creativity. In terms of economic value, this one is not only related to the existence of a material product but is extended over the performance of the system, whereas the utility is really depending on the utilisation of the product or system.

4.4. The transformation of the service sector

Points of controversy

11. A Service Economy or an economy of services?

Both the classical and neoclassical schools of economic thinking have maintained that all economic activities can be divided into three sectors: agricultural, industrial or manufacturing and services (primary, secondary and tertiary sectors). These subdivisions are due to an historic fact. At the time of the foundation of modern economic theory, priority was given to what was believed to be the most efficient tool for building the wealth of nations: the process of industrialisation. Agriculture remained an important but "traditional" activity, industrial manufacturing was centrestage, and the tertiary sector was a way to classify secondary activities.

It has, however, been the very efficiency of the manufacturing processes through technology that has brought about today's situation, where almost all manufacturing activities depend, for 70 to 80 % of their costs, on service activities within their production structures. These activities include research and development, financing, distribution, storage, maintenance, security, waste management, etc. Many traditional service activities, on the other hand, are using manufacturing tools in a way that makes it difficult to distinguish them from, for instance, a control system in a chemical company.

Hence, in all industrialising countries, manufacturing jobs have been constantly diminishing over the last decades while jobs in service functions within and outside the so-called tertiary sector have been making the dominant contribution to employment.

Another fundamental issue is the fact that services do not merely signify a radical alteration of the structure of manufacturing and production processes in a strict sense. The entire process of wealth production is now arranged across an entirely new time-dimension:

R & D intervene before any manufacturing takes place.

Maintenance and distribution systems as well as waste management costs take place after a product or a system has been sold.

Many economists have tried to fit the notion of services in the "normal order of things" by treating them as a kind of "invisible" products. In fact, no products are used without services and no services are performed without material products. It is a matter of relative importance: during the Industrial Revolution, obvious priority was given to the production of material goods while in modern contemporary economies, by far the major issue is the running of service systems which integrate the proper handling of material inputs.

This discussion about the structure of the production or supply (and indeed of productive activities in general) is fundamental to the business of identifying comprehensive policies capable of successfully addressing the employment problem.

4.4.1. The new reality of the service sector

When statistics today are provided by official institutions on service jobs and employments, they already clearly indicate that most industrialised nations already employ people in services, inside and outside industry, for about 70 to 80% of the active population. For the last 25 years, the growth of jobs has been spectacular, especially in the USA and precisely in the service activities. Official figures also normally show a stable, but more often a declining number of jobs in pure manufacturing activities or companies.

The OECD estimates that from 1960 to 1995 employment in the USA nearly doubled; in the public sector alone over 30 million jobs were created net. Japan experienced a cumulative employment growth of 12 million jobs between 1973 and 1992, and Oceania provided an additional 2 million jobs in the

public and private sectors. Whereas in non-government services all industrialised countries witnessed annualised increases between 1979 and 1990 of 2.7% in the USA, 2.3% in Japan, 2.1% in the EC and 1.4% in the EFTA, most of them saw also a decline in manufacturing. Annualised percentage changes for the same period were -0.5% for the USA, an exceptional +1.0% for Japan, -3.3% for the EC and -1.0% for the EFTA. In short, services have been the driving force of economies and employment in the last two decades. They have also been recognised to present the characteristics of being flexible, adaptable to various conditions of production, to different social and cultural environments.

A great debate has taken place on the notion of productivity of services: But this notion is blurred by the fact that the performance of a service is not the same as the performance of the manufactured product. Increasing the number of automobiles produced in a production chain has not the same results as increasing the number of patients visited by a doctor or the number of students who can be piled up in a classroom. In the first case the result has to do with a total number of automobiles produced in an unit of time and in the other cases the good result can only be measured by the level of health achieved by the patient or the level of education achieved by the student. In theoretical terms, this represents the need for a shift from measuring flows (added values) to measuring stocks (or levels or end results). In this debate, it would seem obvious to consider the notion of quality in results as the key for measuring the real level of productivity in a Service Economy. Optimising quality, in performance, is the proper reference for measuring productivity in services.

A very fundamental question is the one concerning the effects of technological development on services, services performance and the development of employment. It would seem

adequate to say that technological developments, until now, have increased the number of jobs in a powerful way for all sorts of services activities. The great question today is to find out if technology by increasing its efficiency is starting to create possibilities of rationalisation in many service activities to the point that the number of jobs available from services would decline to such a point as to offset the new jobs created by new service activities. Recent studies hint that traditional service activities, such as banking and insurance, even if they are expanding at an important rate, might be at the beginning of a phase of drastically reducing the possibility for creating new jobs.

From a historic point of view, however, forecasts that the next wave of technological change will cause high unemployment and/ or large declines in real wages have been frequently made during the past two hundred years. So far, they have been wrong: increased productivity has been accompanied by rising labour demand and increasing real wages.[45] In addition, the spread of new technologies, like the use of computers, has a very long lead-time, linked to the problems of adequately learning how to use these new tools in a massive way. Historically, similar innovations like the introduction of electricity in the manufacturing system at the beginning of the century, took over 20 years before giving any sign of increasing productivity. We might therefore expect that after a long time, perhaps a decade or two, we could now face in the coming years a massive increase in productivity which until now has frustrated those who have been looking for global positive indicators in this area at the general economic scale.

Whatever the situation, it is in any case probably clear that any developing country, and this concerns the new “tigers”

[45] Cf. OECD (1994): The OECD Jobs Study. Part II. And background papers of the US Council of Economic Advisors, 1993.

in the world such as East-Asia, and also Eastern Europe and then Latin America, will be well advised to stimulate and develop adequate forms of services for their modern "industrialisation" as a priority. Services in any case will have a key future for employment and because there is a major difference between a worker at the production chain or in a mine and a service activity, once again employment policies can benefit and exploit this situation of potential flexibility in a most positive way. It is also clear that most services require an adequate level of education and even of recurrent education over the life cycle of individuals in all branches of activities, which require the adaptation and fine tuning of the educational system.

In any case, we are facing, also from this point of view, a tremendous increase in our capacity to produce wealth which needs to be organised and stimulated in the most proper way. There is a lot to be done in this area, but the question remains if it will be really possible to create a situation to avoid unemployment and to really offer to all able human beings, in their life cycle, which is becoming always longer everywhere, the possibility to adequately develop their capabilities of "prosumers" and first of all to achieve a higher level of human dignity by being able to use their potential in producing their part of wealth.

Points of controversy

12. The economic and legal growth of liabilities a new connotation of demand

In the last two decades, an important development has taken place on the fringe between law and economics, concerning essentially the issue of liability: products or services which do not perform as expected are submitted at a growing rate to procedures in liability.

This development is one of the most prominent indicators of the changes in the notion of demand in the economic system. In fact, the value of a product or a system is no longer defined exclusively through its material existence but increasingly depends how any product or system performs. This means that the buyer or consumer, be it an individual, a community or a company, reflects on the expected performance of any such product prior to the aquisitioning transaction. In addition, the notion of performance and the development of liability are linked to the phenomenon of vulnerability, at the basis of the development of risk-management in all sectors.

Although in some countries, the drastic increase in the number of conflicts and liability claims can be attributed to specific national circumstances, this phenomenon is not simply a transient mode or fashion. Product liability has fundamentally to do with what is expected of the production system as a value and how the consumer or user, conditioned by practice and real problems, reacts to it. We increasingly buy and consume performances rather than just material products.

4.4.2. Material and immaterial products in the Service Economy[46]

Numerous books and articles[47] on the current state of our economy and its transformation have suggested that we are faced increasingly with the so-called "dematerialisation of products". The change from the traditional Industrial Revolution System that concentrated on the manufacturing of tangible goods to the new Service Economy is usually explained as a shift from "material" to "immaterial" goods and values. This notion of "immaterial" stems from the observation that during the classical Industrial Revolution the production process had mainly to do with material, i.e. hardware goods and tools. In our present society, where services and information play an increasingly more important role, products are very often "immaterial", as for instance a piece of information or a computer program. Nevertheless, these products bear a close relationship to the tangible world as their support or transmission systems remain "material".

Whether merely implied or explicitly stated, contained within this approach is the claim that the Service Economy is less "materialistic", more open to "immaterial" values. Similarly, the word "quality" is often used as an analogy for "immaterial" and is frequently related to the notion that a higher degree of education is an essential prerequisite of proper production.

[46] On the issue of immaterial products and economic activities there are a series of outstanding publications by the director of the "Product-Life Institute" in Geneva, Walter Stahel. To cite a recent one: Stahel, W. (1996): Die Industriepolitik beim Übergang zu einer Kreislaufwirtschaft. In: Axt, Ph. et.al.:Ökologische Gesellschaftsvisionen - Kritische Gedanken am Ende des Jahrtausends.

[47] Cf. Nussbaumer, J. (1984): Les Services. Or: Diani, M. (1992): The Immaterial Society : Design, Culture, and Technology in the Postmodern World.

All these analyses maintain a dichotomy between tools and their utilisation. Hammers, computers, radios, rockets, chemical plants etc. are all tools, material tools, and their use always requires some kind of ability. Celtic runes were engraved in stone handling hammer and chisel, medieval scholastics used a quill and ink on papyrus, until recently most authors wrote on a typewriter and now we work with word processors. All these tools require their own special knowledge regardless of their state of technological advancement. No tool has ever been used without knowledge or culture of some kind, however rudimentary.

The issue of the "immaterial" nature of services can probably be more usefully approached in the following way. There has always existed a combination of material and immaterial resources, in any type of economic activity. The fact is that during the Industrial Revolution System, priority was given – and in our view justifiably – to the material side of the problem: Let us produce things first and find a way to use them later, for the world is dominated by scarcity (of tangible goods). In the new Service Economy, in which material instruments and qualitative conditions of utilisation are integrated – as they have always been –, the latter have become dominant simply because in the current economic system they cost more (money and effort) than the mere production of tools. There has been a shift of emphasis towards the notion of the function of tools, which is an "immaterial" concept describing utilisation, and away from the earlier priority given to their material existence.

It has to be emphasised that in the Service Economy priority is given to functions, the primary concern being with result-producing systems. Nevertheless, these systems depend heavily on material goods, even if they produce abstract artefacts like communications or software. One should therefore be careful not to use the word "immaterial" to refer to a rather vague

and somewhat idealistic description of current economic development.

A function or a system is immaterial per se, just as a machine tools is material per se. The intelligence needed in both cases may develop in a number of different directions. More knowledge will come to the Service Economy as a continuation of the normal trend towards progress throughout all phases of human history. Industrialisation required a different level of investment in knowledge than did traditional agriculture. Knowledge is nothing new to humanity: even the man who invented the bow and arrow was an "intellectual" in his time. Once this becomes clear, we are more likely to describe current higher and increasing levels of education not as something new, but simply as something more appropriate to present economic development. The new Service Economy is not about immaterial versus material goods that should be treated likewise, it is about the prominent and still growing importance of those immaterial aspects, i.e. knowledge and culture, that are needed put material tools to their best use.

4.4.3. The trend towards decentralised production and utilisation systems

One of the basic laws that has kept the Industrial Revolution going is that of economies of scale. The concentration of production facilities and mass production have stimulated much of the economic growth over the last two centuries. Today, most production processes are many times larger than they were during the last century. The paradigm of the economies of scale is that a larger scale of inputs and production leads to greater productivity since the output increases more than just proportionally. An additional 5% in input might therefore lead to an increase of 7% in output, thus productivity, the measure-

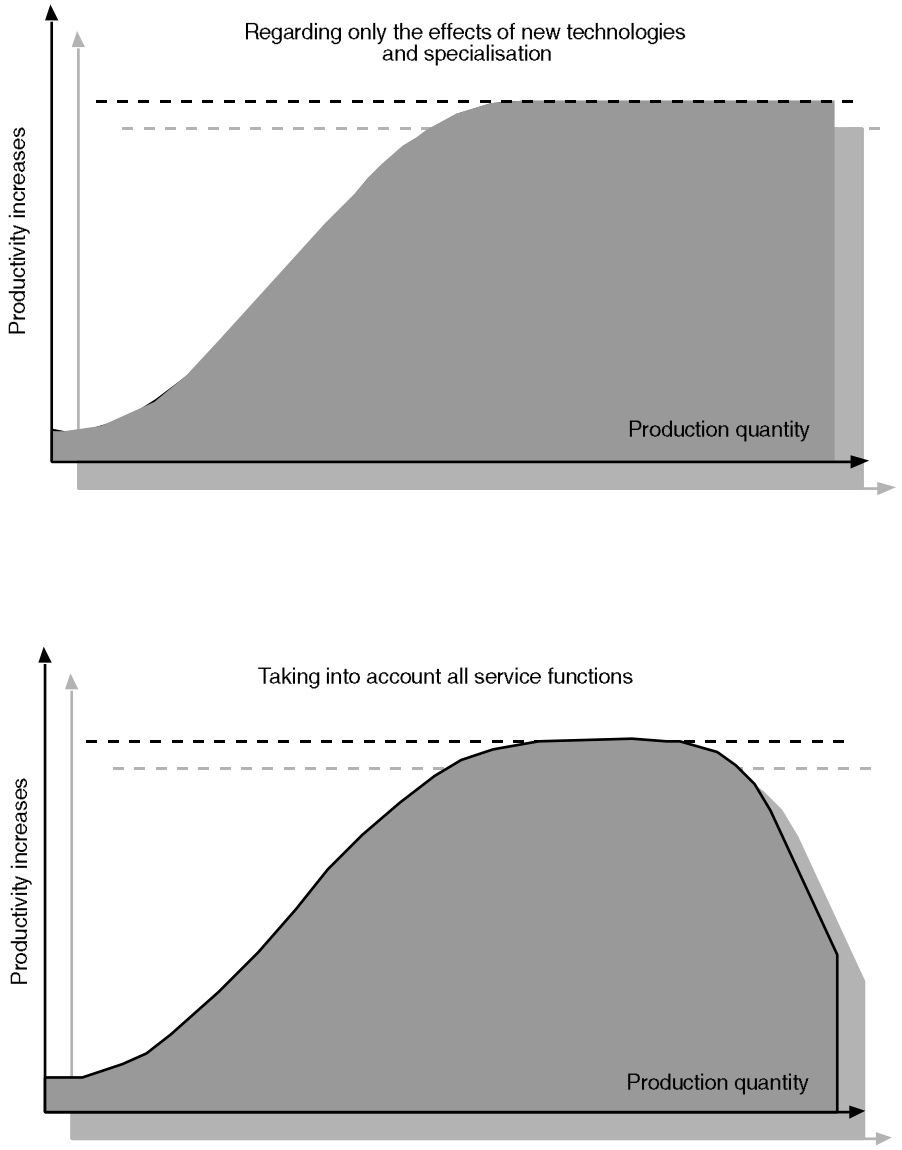
ment for output per unit of input, would be higher by 2%. During the last century, our industrial production system has tried to exploit economies of scale as far as possible. However, while scale economies might apply in certain situations to most production systems, at some point decreasing returns to scale may take hold. Possible reasons for this possible development are inefficiencies in the organisation, supervision and management of the production process. It appears as if these shortcomings could be overcome by developing new management strategies that do can overcome the shortcomings of the current system, and thus no longer offsetting gains in productivity.

There is, however, an important development that affects the efficiency of production systems to a major degree: the increasing importance of the so-called secondary or non-productive activities. The mature Industrial Revolution has produced an economic system where the costs of production are only a very small part of the costs involved in making a product available to the customer.

One study at the Batelle Research Institute in Geneva, during the late sixties, illustrates this point. It concerned a machine capable of producing 500,000 blankets per year. The cost of production per blanket would have dropped to a very low level, provided of course all the blankets were identical to each other. At that time, the total annual market for blankets in Switzerland was about the same quantity of half a million. But, given the very special type of blanket the machine produced, it became clear that such blankets could only be sold through a world-wide distribution network. It then became apparent that, for such high volume production, specialising in one type of blanket, great costs would have arisen in storing the inputs for production itself, in warehousing the blankets once produced, sending them to different markets, organising distribution an so on. The total cost of these service operations alone, that are ne-

cessary part of and fully integrated into the production system, would have been more than 90% of the price to consumers. Pure production costs, neglecting all other necessary satellite activities, per blanket would have decreased to less than 10% of the final selling price. The product was not competitive because the increase in service functions would have been much greater than the increase in productivity the machine's super-specialisation made possible.

This case study was a blow to the traditional concept of economies of scale. The introduction of new technologies does, of course, increase productivity continually, even if at some point the additional gains might be neglectible. However, if we investigate not only the core production process, but also the increase in all the functions necessary to make the product available to the customer - the final aim of all production activities - we would obtain a very different function (see figure).



Increases in productivity

Fuente: Giarini, O./Stahel, W., The Limits to Certainty

The first part of the modified productivity curve is much alike the traditional one, where increases in quantity lead to increases in productivity. However, at a certain point, when the cost of necessary service functions that complement the core

production process are rising faster than productivity increases within the production process itself, the curve will turn downwards. This fall results from the rise in the unit cost of the production and service functions required to make the product available.

As we can see, there appears to be a limit to the concentration process and ensuing productivity gains. Having realised this truth, many corporations have abandoned the hunt for gigantic production sites and mega-factories. The accumulation process of industries has come to an end in many sectors, even the traditional economy of scale of steel production has given way to smaller production units that more efficiently integrate the satellite service functions. This process of decentralisation is rather new and an immediate consequence of the growing importance of integrated services for our industry.

In addition to the decentralisation of production there exists a similar trend for utilisation systems. In the traditional economy of the Industrial Revolution, distance played a very important role. Production and utilisation sites had a tendency to agglomerate to keep distribution simple and cheap. First, as a consequence of the introduction of improved means of transportation, the impact of distance was reduced. But only with the implementation and the revolutionising possibilities of the new information technologies became of local separation of producer and consumer at virtually no cost possible. Where IT-related products, e.g. information or databank services, that do not demand the transportation of physical goods as carriers of their value are produced and sold, the extension of local markets, i.e. the degree of concentration of consumers, loses its importance. An increasingly larger share of our production is characterised in such a way, they can be produced decentralised through global networks and distributed through these net-

works as well, complementing the general process of decentralisation of our economy.

4.4.4. The shift of employees from industry to service and the effect on productivity

The more recent history of the Industrial Revolution has witnessed a shift away from the industrial production towards the service sector. In 1970, 34% of civilian employment in North America pertained to the industrial sector, today the proportion is less than a fourth, in the European Community the fall was similar, from 41% to around 30% today. While the agricultural production accounted during the last two decades constantly for less than 5% of the employment figures, it was services than received a major influx of workers. In the USA and Canada it rose from 60% in 1969 to 72.5% in 1992, in Europe it increased from 42% to over 60% in the same period.

There has been a constant debate on whether this shift from supposedly high productivity industrial work to presumably low productivity jobs in the service sector really had any notable effects on the overall productivity of the economy. Relentless downsizing, mainly in industry, increased pressure on once-secure professionals, the depletion of the traditional high skill blue-collar jobs in favour of low skill white-collar work, growing part-time and temporary hires have created the image that the economy, previously concentrating on increases in industrial productivity, is losing just that: productivity.

For some economists, the process of losing good jobs is mainly a story of technological shocks, rising productivity in manufacturing replacing workers with machines, that have to be absorbed. Productivity should not suffer from this, on the contrary, it would experience a notable gain. Others challenge

this view on the grounds that trade is in fact eroding high-paying manufacturing jobs and wages, leading to a serious drop in productivity. Again others perceive an increase in skills, but a drop in compensation, leading to higher productivity but falling median wages.

However, it appears that there is one common problem attached to many studies: how to measure the productivity of services in comparison to production? There is no answer to this problem since services are not in contrast to industrial production but complementary. Any increase in the efficiency of services will definitely have an immediate impact upon the traditional estimations of productivity in the industrial sector. As most industrialised countries become less makers of goods and more suppliers of services, that are harder to count than the number of automobiles produced, figures for output and productivity become increasingly blurred, probably underestimating the true situation by a significant margin. One obvious example for this development is the failure of personal computer to make any notable impression on the productivity statistics. Even though, the big boost to productivity by the new information technologies is yet to come, there should have been already a visible change. Since the impact of computers on productivity is evident to everybody employing them, it must be statistics that somehow get it wrong.

According to the OECD, America, that is leading Europe in the process of shifting from industry to services, has not predominantly created so-called McJobs, those low skill work places often associated with the new Service Economy. On the contrary, while creating 51 new jobs for every 1,000 people of working age during the 1980s in private services, many more than in Europe, those were mainly in the professional, technical, administrative or managerial category and less in clerical or sales and service. It seems that an extension of the service

sector does not implicitly lead to a deterioration of productivity.

4.4.5. The Workplace of the Future

In the past we have witnessed first the mechanisation and later the automation of our economy and especially the manufacturing industries. Mechanisation replaced human performance, previously centred on human muscle power, by the exploitation of alternative energy sources. Where a replacement was impossible, at least a certain support should have be given. The automation process went a step further by not only replacing human power to a larger degree but also starting to execute entire work processes and carrying out certain control procedures.

Now we are about to experience a new process, that of informatisation by an increased application of information technologies. The workplace of the future will be determined by the impact of communication onto and the diffusion of information into the work-sphere. This will have an important influence on the production processes and systems in our factories and the administrative work in our offices. It also calls for more flexibility in the fulfilment of various job assignments on part of the future employee.

The trend of further integrating information technology into the production process, thus connecting today's mostly isolated solutions of computer aided techniques to a large network, will characterise future factories and their administrations. Virtually all areas will be planned, lead and supervised by one integrated information system, comprising all formerly isolated solutions. This integration will affect as much the horizontal as the vertical dimension, since the various tasks of

planning, designing, producing, marketing, distributing and recycling a product will be subjected to one omnipresent handling tool consisting of a network of computers.

This will require smarter administration and services as well and therefore, administration and services of the future will not only be driven by the advances of the information technology in their own field but also by the repercussion of a more flexible factory. Future development in these fields will be driven by the necessities of an informationalised production process, in the widest sense, and the increasing penetration of electronic media. Internal and external communication will be marked by the collective nature of new information technology and telecommunication as a means of transportation.

The administrative and servicing workplace of the future will be computer integrated with multifunctional terminals that comprise intelligent tele- and video-phones and the connection to an intelligent network. These terminals will handle a far greater amount of information as ever before and provide a better support of the people working with them. But at the same time these people need better education and training in the efficient usage of the new systems and a greater flexibility to adapt to changes.

4.4.6. Teleworking as an alternative to traditional jobs

Teleworking is an important part of the computerisation process and a showcase for the workplace of the future. It consists of a relocation of work activities away from the normal expected place of work to almost any other conceivable location. The supply of work and its output are carried between employer and worker or worker and client via a telecommunication link. This will cause a new division of working time between

the traditional city-centre office, a community-shared neighbourhood office managed possibly by a third party and the worker's home.

The obvious advantages of teleworking are cost reduction, increased productivity and employee morale, improved customer services and organisational flexibility. Cost savings can be achieved by reducing office overheads, by eliminating the need for large and/or expensive premises and by avoiding travel expenses. Increased productivity and employee morale are mainly caused by a greater flexibility for the teleworker, since he is free to decide where and when to perform.

The changing demographic patterns of our society are exerting growing pressure on some areas of the labour market. Teleworking can ameliorate the problems of recruiting, training and retraining staff. On the one hand, there will be less staff turnover from a responsible and highly motivated workforce enjoying a more flexible approach to work, while, on the other hand, more tasks will be outsourced to subcontractors working as specific "problem-solvers" rather than as a stand-by labour force. It will also be easier to find people with the necessary skills since the search can be extended far beyond the normal commuting area. This is especially important for short-term projects that usually prohibit the employment of specialists that do not reside nearby. Teleworking also offers a better opportunity to work for temporarily or permanently disabled people and for persons on maternity leave.

There will, however, be a major change in corporate culture necessary to cope with the intricacies of the new working system and organising and managing a teleworking staff. The traditional methods of supervision and performance measurement will no longer be applicable and output will have to be judged rather on quality than paying too much attention on

how or when the results were generated. This will require a considerable change in management attitudes and will probably lead to the development and introduction of new management techniques. As a consequence, this as well as the increased contracting of independent experts will alter the traditional employer-employee relationship.

Teleworking will create new possibilities but it will also exert more pressure on the individual worker who has to meet the requirements of the new technology in addition to his other expertise. Teleworking will involve *"the use of mobile and data communication as an integral part of a person's work, rather than as a specialist function. It is associated with new flexibili - ties in employment."*[48]

While teleworking provides many opportunities to employers as well as to employees, it also contains some inconveniences and potential dangers, mainly in the social dimension of work and the possibility of security breaches or system breakdowns, that would have larger impact than in more traditional work systems. As with any other tool or support system, it is foremost the way in which it is used or implemented that will determine whether the beneficial or the pernicious effects will prevail.[49] It nevertheless seems to be a save prediction that society will have to learn how to deal with an economy that relies more heavily on teleworking in the future than it does now.

[48] European Commission (1993): Actions for Stimulation of Transborder Telework & Research Cooperations in Europe.

[49] For a more in-depth analysis of telework and its impacts and effects confer to: Schneider, Bertrand (1996): Telework.

4.5. The need of a basic income

4.5.1. The minimum guaranteed income

We have already emphasised the importance, for a modern economy, to include in the strategy for developing the wealth of nations non-monetarised and non-monetised activities and work. It is, however, important to avoid any misunderstanding on the value and social importance of money. It is no question to go back to the old utopias of the last century or to new ones, dreaming of a money-less society. Money has been one of the essential creations of civilisation for making real progress possible. Of course the human shortcomings are such that money, like religions or medical drugs, instead of being used for the good, can be and are too often misused for the evil. But it should also be clear that the old utopias for a money-less society of the past were in fact subconscious tentatives to escape modern realities and possibilities in their positive sense, and reflect simply resistance to new possible amelioration. A Robinson Crusoe type of society whatever the myth and particularly in a situation of massive human interdependence, is impracticable and most likely leads to disaster.

Since our current economic system is based to a large degree on the use of money and we do not aim for a change in this, it is essential that everybody has access to a certain amount of money to pay for the necessities of life. These include adequate nutrition, clothing, housing, health care etc. Unfortunately, for 1.4 billion people, approximately one fourth of the world population, even these necessities of life seem out of reach since they subsist below the poverty level as determined by the United Nations in 1995.

Therefore, any sort of employment policy, keeping in mind the necessity of developing productive types of jobs, must aim at the minimum essential availability and access to money. It is a first step to personal freedom. By private and when necessary by public means everybody should have access to a necessary minimum amount of money for a productive work. One possible alternative to provide this minimum amount of money is very simple: a universal, unconditional basic income paid by the state to each individual citizen. A basic income would provide each individual with a form of material independence never previously enjoyed in the Industrial Revolution, except perhaps by large property holders. Women would no longer depend on men for subsistence, nor workers on employers for wages, nor the unemployed on a state office for their social benefits. The shock that nowadays follows any radical change in a family's situation, such as the bread-earner dying or becoming unemployed, would be cushioned.

A basic universal income would unify and simplify the current immensely complex tax and benefits system. At present, the state distributes more in tax allowance than in social security benefits, but few people understand or recognise this. Under the basic income scheme, all income from all sources would be taxed, and everyone would pay according to their age and health. The basic income scheme would thus abolish the poverty trap, under which at present many low earners lose income form benefits, by increasing their earnings, as well as the unemployment trap, which makes it unprofitable for people to return to work.

Above all, a basic universal income would encourage risk-taking and innovation by individuals. Absolute poverty is an inhibitor to the risk-taking and activity creation that constitute the main chance for women, youth and elderly to gain access to wealth creation, through productive or unproductive

activities, in terms of monetarised material wealth or non-monetarised activities. Education and training can be integrated with employment so as to reflect an individual's choice and not merely the needs of the employer. Work motivation would then tend to replace financial interest as the main criterion for job selection. Technological change would be easier, as workers would have fewer reasons for protecting jobs, since their basic incomes and personal dignity would be guaranteed through the basic income scheme.

Arguments against the basic income scheme focus mainly on costs and work incentives. Some experts have worked out revenue-neutral schemes using current figures, keeping basic incomes near the present supplementary benefit levels and taking account of tax relief and income-tax allowances. Some people would certainly change from formal employment to self-employment or self-servicing activities, for example, taking the optimisation of the utilization period of the goods around them into their own hands, rather than relying on expensive expert services. This possible increase in the "informal" economy would still increase overall wealth as measured in assets and system operation, even if it did not qualify as an increase according to the Industrial Revolution's criterion which measures only paid employment resulting in products that are sold. Socially useful non-monetarised activities would equally be encouraged by a basic income scheme, such as looking after one's own parents rather than locking them up in other people's home. Various forms of cooperative would become possible, and could be established by workers pooling their basic incomes for the time it takes for a venture to become commercially viable.

The debate on basic incomes has started and has already produces various formulae, for example, Milton Friedman's idea of "negative income tax". In fact, the proliferation of many

sorts of benefits, insurance schemes and allowances makes the prospect of a basic income increasingly likely, a process that will be accelerated over time by two major areas of concern: First, the need to co-ordinate what already exists, and second the challenge of giving incentive to a risk-prone society while meeting its minimum survival needs and avoiding the negative incentives and moral hazards engendered by the speculative behaviour of individuals whose sole purpose is to accumulate privileges from as many sources as possible.

4.5.2. The negative income tax

The negative income tax provides a viable solution for the problem of how to organise a basic income system efficiently. It constitutes an alternative much in the spirit of the preceding chapter, relieving our society of the perverse effects of the current social security system on economic efficiency and the social structure. It would be not only be easier to manage and therefore cheaper to organise but also more humane since it would replace the current incoherent set of income support and welfare systems with a single concordant program of monetary assistance. Any disincentives to work inherent in so many other schemes could be reduced through the adequate introduction of a negative income tax.

The negative income tax is a noncategorical welfare program that depends only on income and not other characteristics of an individual like age, marital status, disability etc. Any individual that does not have an income receives some basic grant, those with modest levels of income receive lesser supplements in such a way as not to hurt the incentive to work more. This can be achieved by permitting the individuals to keep most their earnings while gradually phasing out additional monetary support. In this way the feared poverty trap, a si-

tuation where the withdrawal of financial support compensates or overcompensates additional earnings leaving the individual worse off than if he had not worked, can efficiently be evaded.

Critics of the negative income tax argue that it would undermine the work ethic, resulting in reductions in the work effort of the affected people. This adverse situation, however, is very much subject to the level of benefits granted. If they are too generous, people will opt not to work or work less, as a real-world experiment in New Jersey demonstrated. The question is therefore rather one of fine-tuning the negative income tax system in such a way as to avoid impact on working morale. The second criticism about the high costs of this system is more about ethics than economics since it rises the question whether people should be left living under the poverty line - even if they could be helped - for the sake of improved market efficiency. The current welfare provisions do not comprise every needy person in hardly any industrialised country and is therefore cheaper than an alternative that would reach everyone in need.

Still another mechanism is proposed by Gary Becker: the Earned Income Tax Credit (EITC). He maintains that this system would be a wonderful *"alternative to both a higher minimum wage and an extensive welfare program sharply [... targeting] poor families without reducing employment, encouraging a welfare mentality or rising governments spending."*[50] The EITC is family based and works as follows: until a given limit of family income, the family receives an additional credit equal to 40% of its income. With higher income this credit phases out until finally the family receives no tax credit at all.

[50] Becker, G. (1996): How to End Welfare "As We Know It" - Fast. In: Business Week, 3 June 1996, p. 8.

Becker judges this system as superior to others since it rewards rather than penalized poor families with working members. It evades the disadvantages of rising minimum wages, it does not affect the incentives of companies to employ workers with few skills and it even increases the incentives of the less skilled to get training. However, the moral hazard component that is inherent in all systems like Becker's cannot entirely be eliminated. In the moment when the subsidy phases out and then disappears at a certain level, there is moral hazard present. The impact of this moral hazard on human behaviour can only be guessed. From our point of view we welcome this proposal since it is an interesting approach to subsidise work and not idleness, a concept which we regard as of utmost importance.

4.6. Preserving the value of non-monetarised activities in developing countries

4.6.1. The economic situation in developing countries

It is hazardous to try to generalize too much about the 144 member countries of the United Nations (UN) that constitute the Third World. While almost all are poor in monetary terms, they are diverse in culture, economic conditions and social and political structures. The UN classification system distinguishes among three major groups within the Third world: the poorest 43 countries that are designated as *"least developed"*, the 88 non oil-exporting *"developing"* nations and the 13 petroleum-rich countries that form the Organization of Petroleum Exporting Countries (OPEC) whose national incomes increased dramatically during the 1970s.

All these nations face different problems according to their historical and sometimes colonial background, their human resource endowments, their economic structure, their political situation, their geographic location etc. There are, however, some common characteristics of developing countries that differentiate them from the rest of the world. These are: low levels of living, low levels of productivity, high rates of population growth and dependency burdens, high and often rising levels of unemployment and underemployment, significant dependence on agriculture production and primary product exports and a dependence and vulnerability in international relations.

The low living standards manifest themselves quantitatively and qualitatively in the form of low and unequally distributed incomes, wide-spread poverty, inadequate housing, malnutrition and poor health, limited or no education, high infant mortality, low life and work expectancy, and in many cases a general sense of malaise and hopelessness.

In developing countries the levels of productivity of labour are significantly lower than those of newly or early industrialised countries. This is due to the absence of complementarity factor inputs such as capital and/or experienced management. To effectively battle this situation, domestic savings and foreign finance have to be mobilized to generate new investment in capital goods and further the formation of human capital through investment in education and training. Institutional changes are also necessary to maximize the potential of this new physical and human investment. These changes might include such diverse activities as the reform of the land tenure, corporate tax, credit, and banking structures, the creation or reinforcement of an independent, honest and efficient administration and the restructuring of educational and training pro-

grams to prepare people for the new demands of the developing societies.

The question of high population growth, as already discussed in previous chapters, has to be solved as well. It seems unrealistic to expect a major improvement on an per capita basis when all advances are overcompensated by inhibited population growth. Into this cathegory of problems falls also the high dependency burden in most developing countries, that is estimated to be around 50% for developing versus only 30% for developed countries. The adoption of population control measures appears inevitable while the dependency situation can only be improved indirectly.

Due to the accelerated population growth the unemployment or underemployment situation in developing countries is getting worse with time. To improve the situation more jobs have to be created than people enter the labour market at any time. Even if the population growth could be stopped right now, the labour supply would augment for another 15 to 20 years. Relief could come in form of a major restructuring of the economy that still very heavily depends on agricultural production (Africa 75% of working population employed in agriculture, industrialised countries typically less than 5%) while the industries are almost everywhere severely underdeveloped.

While no cure-it-all remedy can be prescribed for improving the situation in developing countries, it is obvious that help must be given so that the most pressing issues can be solved. It nevertheless is important to realize that not all changes in Third World countries have to be necessarily in the way that are common in industrialized nations. While many developed countries have huge supplies of fancy goods, toys and cars, the ecological, social and human costs that are incurred in their production and consumption are not always desirable as they

might include environmental pollution, the decay of towns and urban congestions, high crime, violence and the breaking down of social structures.[51]

The special situation of developing countries that are more and more confronted with the ways and workings of the monetarised economies has already been described by Albert Tévoédjrè nearly twenty years ago.[52] Today, this situation is becoming increasingly pronounced due to the increasing globalisation and the discovery of developing countries as potential markets with high future growth opportunities by industrialized countries. Tévoédjrè reveals the weaknesses of a society that is chiefly concentrating on money and its generation comparing it to a system of poverty with other degrees of liberty and freedom. In this sense he cites Nyerere's statement on official Tanzanian policy: *"The development of a country is brought about by its people, not by money. [...] The four prerequisites of de - velopment are different, they are: people, land, good policies, good leadership."*[53] Here, an important step is made in the right direction: to sewer the since the Industrial Revolution historically tight bond between money and the wealth and welfare of people.

The next step now has to be to integrate the non-monetarised and non-monetised contributions into a more general framework. This is especially important for developing countries that are in the unique situation to observe the policies of industrialised countries, to identify their shortcomings and errors

[51] For a more detailed analysis refer to: Galbraith, J. (1962): The Affluent Society. Toffler, A. (1970): Future Shock. And Dupuy, J.P./ Robert, J. (1976): La trahison de l'opulence.

[52] Tévoédjrè, A. (1979): Poverty - Wealth of Mankind.

[53] Nyerere, J. (1968): Freedom and Socialism. P.243. As per: Tévoédjrè, A. (1979): Poverty - Wealth of Mankind. P. 116.

and to learn from these experiences. They need not venture into the same pitfall of an economy whose efficiency is determined nearly exclusively by the performance of its monetised components.

Whereas in monetary terms many countries are indeed poor and their economies underdeveloped, the traditional focus on GNP figures, that only capture part of the economic performance – and in the case of developing countries with a weak industrial basis only the smaller part – can lead to a serious misinterpretation of the situation in these regions of the world. Especial attention has to be paid to the non-monetarised and non-monetised parts of the economy that here more than anywhere else contribute to the wealth and the welfare of the people.

4.6.2. The value of non-monetarised activities in developing countries

We have already stated the importance of non-monetarised activities for the performance of an economy and the wealth and welfare of its population. The integration of monetarised and non-monetarised activities provides a stimulus to an economy that would otherwise be less efficient. In the developing countries we face a situation where there are still many non-monetarised activities as intrinsic part of the economy enhancing the productivity of this system. Confronted, however, with the need for increased growth rates in the monetary sector, many of these non-monetarised and therefore often unvalued and unrecognized activities have to give way to new monetised production processes that in terms of monetary GNP augment the wealth but in real terms often lead to the destruction of wealth.

Since the so-called productive, because monetised, activities may be parasitic on other non-monetised and non-monetarised work, such as domestic services, child care etc., it is extremely important, especially for the developing regions of the world who have still a larger proportion of such activities prevalent in their economy, to take an integrated view on their future development. People in developing countries will only be better of in real terms, if the development of more monetised work does not destroy more valuable but in monetary terms unrated activities that add to the real but not the monetary wealth of the society.

The way in which many developing countries deal with the problems of life can be a very valuable experience and inspiration for the so-called developed countries, i.e. in this case the highly monetarised economies. Take the example of an African family that provides their family members in hospital with food and other daily needs that are not strictly under medical supervision. The hospital in this system has not to provide expensive extra personnel and facilities to care for the patients. With the same budget more people can be attended and cared for in a much better, i.e. personalised, way, thus increasing the level of wealth and welfare much more than a comparable monetised system that judged by its impact on GNP would express greater richness. Private (home) care instead of hospital nursing or as a complement is just one example for an "underdeveloped" technology being superior to totally monetised solutions.

In most developing countries, the informal part of the economy plays an important role. The Labour Force Survey maintains that about 75% of the workers are active in both the formal and the informal sectors. There is a constant two-way resource flow between them and the contributions from the formally employed family members form a significant source of

starting capital and resource support in the small scale enterprise. Farm products in turn supplement provisions of the urban relatives and rural communities provide health, ritual, child care and other social services to the city folks. There appears to be a substantial flow of goods and services which goes unrecognized in statistics, nevertheless, provides a certain amount of wealth and welfare to people. The complete destruction of this informal sector of the economy in favour of introducing controlled monetised processes would deprive many people in already underprivileged regions of the world of parts of their very modest wealth.

4.7. Employment in the global economy, trade and investment

4.7.1. The global production reality and employment, trade and investment

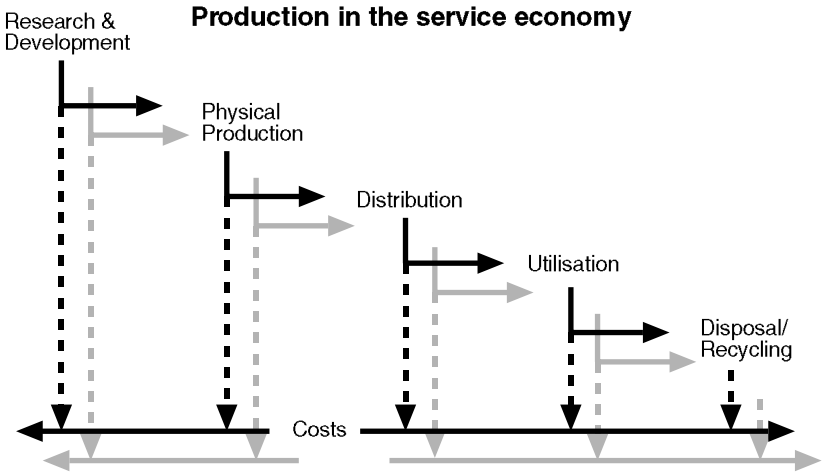
When Christopher Columbus first landed on what is known today as the American Continent, he thought he had reached Asia. Hence, the local people were called “Indians” and this name has survived to our day. Many historical landings in the realms of discovery, knowledge and human development have surprisingly followed a similar path: people went to look for one thing and discovered an other. This has been also the case with the World Trade Organisation (WTO) with respect to the type of economic system that has emerged in the world over the last 30 years.

The consideration here is that the fantastic progress afforded by the Industrial Revolution has now given rise to a Service Economy, where 80% of the production costs – if we include utilisation, waste disposal and recycling – are dependant on

service activities. As such, modern industry has become essentially a service industry. The traditional concept of three independent sectors of the economy, agriculture, industry and services, is replaced by the new understanding that services are intrinsically part of the production process and thus cannot be separated as if they were totally independent. In economic terms, this means that a great revolution has taken place, mostly on the supply-side of the economic system, that changed the rules and parameters which govern fundamental issues like employment, productivity, economies of scale etc.

If we inquire further into this, we find that the notion of economic value itself has changed. Prices no longer relate to an equilibrium system rooted in deterministic vision where certainty is the fundamental theoretical reference. Today, they reflect a probabilistic system even when integrated in a formalised contract, because part of the economic value they refer to will be "produced" at the time of their utilisation and recycling, or when other services are applied to them. Value is always linked more to performance in time (real time) whereas uncertainty depends on the probable period of utilisation of a system and on all the unforseeable events which occur in any human activity in the future. This can mean anything from the next five minutes to the next fifty years.

This change in economic thought has serious implications for global employment, trade and investment. The new Service Economy is about performance in time and not about tangible goods that are shipped to and fro. Once we accept that services are integrated into the production system and in no way constitute a separate sector, this inevitably leads to a new interpretation of the global economy. Let us first observe the production system and the different stages.



The different stages of production in the Service Economy

For the sake of simplicity we suppose that each of these five stages accounts for roughly the same costs, i.e. about 20% of the total costs involved in producing and utilising a good from the first initiatives that are involved in researching and designing it until the final disposition as waste or via a recycling system. We further assume that each activity allows for the same opportunity to obtain a rent. It is now very interesting to note that only 40% of the costs of a shipped product that is sold abroad are generated in the home country. The other 60% of the costs involved have to be attributed to activities that are carried out in the destination country. The distribution of money earned in this process has to be assessed accordingly: 40% at home and 60% abroad.

This analysis might be too simple as in some instances, R&D or the physical production of high-tech goods allow for an extra rent, but these have to be compared to low-tech mass production goods that hardly require any R&D and little special production knowledge and expertise. The additional costs of

utilising a system also vary greatly from one product to another depending entirely on the amount of service that a good has to receive during its life-time to function properly. And finally the disposal of (worn-out) goods is sometimes unnecessary as they might have been used up whereas in other cases the dumping or recycling accounts for the bulk of the costs. In any case, this little investigation reveals the fact that most of the costs are generated locally in the place where the product is sold (distributed), utilised and finally disposed. Even if production facilities are transferred to other countries or R&D activities are carried out abroad, they account together for only 40% of the whole chain.

In this light even globally falling amounts of foreign direct investment lose their scare as supposed first signs for growing protectionism. In a system that generates much of the revenues locally, these revenues can be left in a given location to expand the activities there without the need for more transfers. This is certainly not true for initial investments that are needed to set up distribution and utilisation service networks and certainly not for all goods or products, but it is so for a growing proportion of more mature systems. Nevertheless, *"Foreign direct investment is today the most important vehicle to bring goods and services to foreign markets and, beyond that, to link national economies."* as Karl Sauvant states.[54]

With this new point of view we can also overcome the traditional concept of international trade and foreign direct investment as being adverse to each other. Both entail further activities in the country where the goods are sold. In the case of international trade, 40% of the activities remain in the exporting country, whereas foreign direct investment used to esta-

[54] Sauvant, K. (1996): An International Regime for Foreign Direct Investment - Implications for Services. P. 7. In: Progres Newsletter. No.24, May 1996. Pp. 7-9.

blish production sites transfers a further 20%. Opening a country up for trade not only allows for the creation of distribution, service (as part of the utilisation) and disposal system for the imported goods – with the chance for the creation of additional income – but makes it a necessary task. The same holds true for foreign direct investments that are employed to create production facilities.

Nevertheless, there still exists a series of misconceptions and wrong ideas that continue to blur the horizon towards which world economics in reality are moving. This is like Columbus maintaining the idea that he landed in Asia instead of realizing that a new continent has been discovered. Let us take a few examples from the world of service activities:

- In a predominantly manufacturing industrial society, it was normal to relate the key notion of value to the production of tangible goods, while services were considered separate. As a consequence, when the times became ripe for a more serious consideration of service activities, they were first analysed within the traditional framework. In other words, instead of approaching services in terms of their role within the production process, at the beginning (i.e. in the 1970s and 80s), most economic experts first tried to define service activities with reference to the older system of production of material or tangible goods. Hence, the idea that services were in fact "immaterial products" was born. At the time of the start-up of the Uruguay round, it was fashionable to define services as those products which, if they fell on your foot, could not be felt. This was in fact an attempt to fit the notion of services into the conventional picture of industrial manufacturing. If a service could in some way be defined as an intangible "product", a solution could be found to almost all theoreti-

cal and practical economic problems and, as a consequence, international trade in services would not have been different from international trade in tangible goods.

- The notion of services or of a modern economy based on "immaterial goods" stems in fact from a misconception. Hard products and services are not separate, they are in fact complementary in the same process. When a piece of hardware is used, it produces a service: e.g. an automobile is a piece of hardware and transportation with that automobile for going from one place to another is a service. Therefore, the difference between material and immaterial is in the observer's mind and not part of the reality of things. If we take telecommunications, not a single telephone call could be made or information system work without hardware, and similarly no hardware can be used without adequate services.

- The real difference that emerged some 30 years ago is that while in the classical Industrial Revolution the cost of hardware decisive and in any case represented in economic terms the majority of resources used, in the Service Economy it is the cost and quality of the accompanying services, be it in utilisation or other functions, which are quantitatively determinant.

- This change of paradigm, indeed of reality, is closely connected to J.S. Mill's definition of value: He admitted that tangible products were not the end and be-all of economic life, but that in reality their utilisation or end-use was embedded in their very physical existence. It was therefore enough to negotiate the products themselves without taking into account the purpose for

which in practice they would be used. But the effect of modern technology is that if, on the one hand, hardware costs have continued to diminish relatively, the cost of the services their use involves has continued relatively to rise. Without investment in service resources of all kinds and in particular in human capital, hardware ceases to have further value.

- This also means that an increasing proportion of costs in economic wealth production relates to the place where and the conditions under which users benefit from all economic goods (see above). Alvin Toffler has spoken of prosumers. In fact, this means that trade in systems which need more and more services to be operational and useful is linked to investment where users are to be found.

- Hence, from a world economic stand-point, the crucial difference between the classical Industrial Revolution and the present Service Economy is that, with the former investment in a foreign country was an alternative to exports, whereas with the Service Economy, exports are closely related to investment. This is due to the fact that investment is linked to utilisation and the ensuing disposal and because in turn utilisation is linked to consumer presence.

In this sense, it can be observed that over the last few years some official WTO declarations have referred to the fundamental importance of investment in building an efficient world economy. We hope, therefore, that our modern Christopher Columbus will stop talking about Indians and intangible products, and increasingly develop efficient economic activities based on the new economic realities.

4.7.2. Global initiatives on trade and investment: WTO and GATS

There is a great message of hope in the present situation of the Service Economy which far outweighs the theory of comparative advantage. There now exists a vested interest for all world producers to establish efficient local utilisation systems where their investment opportunities for gain are better guaranteed. Thus we discover, in an economic sense also, a great general interest that all can share, in that the poorer become richer because they are the terrain in which new markets can develop on the basis of their ability to use as prosumers and properly manage available systems.

The WTO's predecessor, the GATT, had in fact already commenced its involvement in services at the time of the Tokyo Round via the discussion of non-tariff barriers to trade. All such barriers are in reality system conditions for product utilisation, and although the idea of the Service Economy was not as yet explicitly defined, a first step was already being taken. On the occasion of the Uruguay Round, as we already explained, the initial idea was that if services could be defined as simply another type of good, then fostering international trade would raise no major problems. In the event things turned out differently and the Uruguay Round negotiators, stimulated by economic reality, were finally able to establish such principles as the right of establishment and national treatment which are in fact the foundation stones of any investment policy worthy of the name in Service Economy terms.

Perhaps we have now reached the stage where misunderstandings are beginning to fade and the way is opening for much more optimistic and productive strategies for developing the world economy. In that process, the TWO could prove a prime mover in relaunching worldwide the wealth of nations.

The key to the global economy is the Service Economy. For in each occasion where new markets are opened up and developed, new employment opportunities are created. Every trade and investment involves not only jobs in the exporting but also in the importing country. We are not talking about a system of comparative advantages where both parties might in the end be better off by swapping their production processes but remain basically on the same employment level, instead we are focusing on the reality that is more complementary in terms of wealth creation as well as employment creation as often perceived by many economists.

Almost all countries have started to appreciate the importance of foreign direct investment for their economy. As a consequence, the have started to compete for it also via their government policies. UNCTAD has found out that out of a total of 373 monitored changes in laws concerning foreign direct investment during the period of 1991 through 1994 only five were not in favour of greater liberalisation.[55] They have recognised that in order to attract foreign investments they have to create a favourable legal environment providing for national treatment, guarantee against nationalisation, permit international arbitration in case of disputes and allow the transfer of funds.

The future of these issues looks rather bright since the WTO entered into force on 1 January 1995 treating market access questions to a greater extent, overcoming the limitations of dealing just with conventional barriers mostly at the border. Especially the General Agreement on Trade in Services (GATS) is an important part of the WTO, thus putting the Service Economy and its workings in a more exalted position. Julian Arkell

[55] UNCTAD (1995): World Investment Report 1995.

puts forward, among others, some important issues for services for immediate focus and work: completion of negotiations on markets access for many service industries, the creation of a WTO multilateral investment code and the enlargement of WTO membership to include Russia, China, Taiwan and other countries formerly part of the USSR.[56] If the WTO and GATS could reach broad and in-depth agreements on these issues, a major step in the right direction will have been made.

Services are now so integral to global production processes and so important in generating employment that an effective GATS is nearly imperative. Clearly there are some problems with the GATS as negotiated during the Uruguay Round, but the most seriouos shortcoming is the underlying conception of services as discrete activities to be disaggregated along sectoral lines rather than aggregatively as functions within production and consumption processes. If a more integral approach to trade in services would be considered, the wide-ranging employment effects of services might become more apparent having an immediate impact on world economy and the employment situation through the adoption of according policies.

In this sense, it might be advisable to integrate trade more explicitly with foreign direct investment, probably within the scope of an additional WTO discipline. Another task in terms of “deeper integration” at the international level should be to make a start towards coordination of national competition policies. As we have already mentioned, there is already a competition in policies among nations, but the uncoordinated patterns of change prevents major gains and in some cases even inhibit rather than enhance trade and investment.

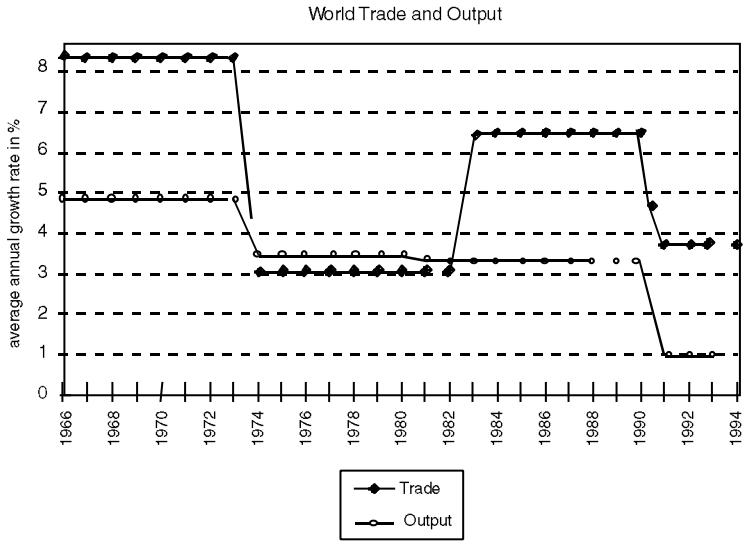
[56] Cf. Arkell, J. (1996): World Trade in Services - A New Agenda to Ensure Continuing Expansion. P. 12. In: Progres Newsletter. No.24, May 1996. Pp. 10-13.

Considering the impact on employment and work, the most prominent issue is about labour rights and “social dumping”. Labour rights become particularly contentious after one goes beyond widely subscribed prohibitions on child labour or prison labour to union rights to organise and bargain and artificially maintained low wage rates (social dumping) as possible restrictions on trade or investment. Developing countries maintain that low wage rates and less regulated working conditions are merely their comparative advantage in trade or the incentive they can offer to attract much needed foreign investment and should not be made subject to restrictive international disciplines. This is a politically difficult issues for developed countries where state regulation of collective bargaining and working conditions are well established and the “delocalisation” issue cuts most clearly. Delicate negotiation and compromise will be needed to strike a balance between legitimate concerns about labour rights and practices and purely protectionist considerations. On this issue, linkages between the WTO and the ILO may be possible and there is the potential to draw the economic and social dimensions of work and employment together at the international level.

4.7.3. Employment, globalization and competitiveness

Since World War II most countries have become more open and increasingly interrelated with each other. This phenomenon manifests itself, on the one hand, in growth rates of world trade that almost at any time during the last five decades outstrip increases in output. And, on the other hand, it becomes visible in the quality of interrelatedness that is much higher now than it was at any moment in the past. Whereas before, most countries limited themselves to trading raw materials and finished goods, today almost all parts of the production chains can be and are exported and imported, often various times for one single product. As a result, the export-to-GDP ratios increased in many countries over the last decades, although the pat-

tern was uneven. Particularly large increases were recorded in the United States (from 5.8% to 10.6% between 1970 and 1992), Germany (21% to 33%) and France (15% to 23%).



Growth of World Trade and GDP Output

Source: UN and World Bank, 1994

The development towards greater openness in international trade and other productive activities is mostly due to the trade liberalization measures adopted in the 1980s and the growth of supranational markets such as the European Union, NAFTA, MERCOSUR and ASEAN. But apart from this there was also a wave of trade liberalization in developing countries which had previously pursued import-substitution industrialization strategies. During the 1980s, over half of the 27 developing countries, for which information on tariffs is available, decreased their levels of tariffs and equivalent import charges.[57]

[57] For more in-depth analysis of globalization questions refer among others to World Bank (1994): Global Economic Prospects and the Developing Countries. Or: UNCTAD (various): Handbook of International Trade and Development Statistics. Various issues. Or: The Economist (1994): Survey of the Global Economy, 1 October 1994.

This new approach in favour of more open economic relations has given rise to concerns about national, and supranational, competitiveness and unemployment in a more global economy. The European Competitiveness Advisory Group, for example, focused as a regional initiative of a common market on *"issues which Europe must resolve if it is to meet today's global challenge."*[58] The fight against unemployment is seen as an "economic imperative" as high levels foster both poverty and margination and typically strengthen political pressures in favour of more protectionism. In their three reports the group makes a series of recommendations concerning labour market policy such as the fostering of competence development, lifelong learning and company training, enhancing mobility between companies, regions and countries, promoting flexibility in working hours, facilitating part-time jobs, and implementing the necessary infrastructure investments to manage and fully exploit the opportunities offered by the new technologies.[59]

In this sense, the ensuing globalization and the entailing question of competitiveness can be positive-sum games for all involved, workers and entrepreneurs, regions and nations. They present a chance to achieve higher levels of wealth and welfare if the current economic systems are adapted to the realities of the new Service Economy and its demands.

[58] See Competitiveness Advisory Group (1996): Third Report to the President of the European Commission, the Prime Ministers and Heads of State – June 1996. P. 7.

[59] Refer to the three different reports for an extensive discussion of competitiveness in Europe: Competitiveness Advisory Group (1995 and 1996): First/ Second/ Third Report to the President of the European Commission, the Prime Ministers and Heads of State – June 1995/ December 1995/ June 1996.

4.8. Developing non-monetarised activities in the overall economy

Because we live in a post-industrial and not in a preindustrial era, it is clearly essential to recognize that our society will always need a minimum pool of monetary instruments for its survival and for the efficient organisation of the economy. At the same time, the efficiency level of monetary expansion and of the use made of money is not infinite. In a sense the encouragement of self-productive activities as a means of reducing production costs can be seen as an indication of the limits of the efficiency of the monetary system.

This transfer of activities to the self-production sphere raises an important issue. During the Industrial Revolution, with the development of every new technology, a classical problem arose: the obsolescence of ancient production systems produced unemployment, but at the same time created many new opportunities for remunerated jobs in other sectors. Over time, however, and especially in the last 30 years this transfer of remunerated activities has tended less and less to be associated with the emergence of new products or machines, within and outside the manufacturing system itself. The above development, particularly apparent for instance in the USA but not only there, has begun to suggest that services themselves could tackle the problem of providing a traditional full-time job for all, or that it sufficed to think in terms of a global reduction of the working week from 40 to 35 or 32 hours.

The problem, however, is that in the Service Economy, the transfer of productive activities from one sector or one job to another, does not necessarily mean that they remain in the monetarised system. There is, in fact, an increasing reversion to the non-monetarised system and as such we face another type of dilemma. Either we stick with the notion that the only viable

employment system is a monetarised one and as a consequence believe ourselves to be faced with an unsolvable unemployment problem, or we begin to accept the notion that wealth today is created in an integrated and interdependent way by the monetarised and the non-monetarised systems combined, and must therefore draw certain inevitable conclusions from that assumption.

As already stated in this paper, we believe that the first option leads us to a negative conclusion: a pessimistic view of the future of unemployment on the one hand and, on the other, the idea that our capacity for creating wealth is diminishing. But this vision of our diminishing capacity for wealth creation stems from our inability to see that non-remunerated and self-production activities are increasingly crucial in reaching this goal. The second option is based on a more optimistic view of the future, as also on a more realistic assessment of what in reality is already actually happening. We would also like to stress that these considerations should not lead to the foundation of a new utopia or ideology. They are an effort merely to detect what is already happening in society as a means to build constructively for the future. After all, most intellectuals and even economists normally follow where reality has already trod. Where they are too convincing, where they attempt to build a society around abstract utopias and ideas, disasters normally ensue. Life and reality are still much larger than our ability to understand them. Our efforts must focus on observing facts as they grow in society and on making hypothesis concerning their interrelationships. The challenge is to detect relevant priorities. It is then our task to test them and if possible falsify them (in the Popperian sense). Utopias are all about certainty and our approach is based on acceptance of uncertainty. But with just one caveat: we believe in the value of work or rather of life as a productive activity.

4.9. Work as an element of personality

Under present prevailing conditions, full-time remunerated work, around at least 35 hours a week, is considered in most cases the only measure of an individual's contribution to the productive activity. It is here, in most cases, where a large part of our social contacts are established and individuals find and define their place in society. In official forms there is always a question about our professional occupation just as there is always a question about our gender: our personality is very much linked to it. The entire network of social interaction is heavily dependant on our position in the (remunerated) working world and the scant honouring of other activities has lead to the perverse situation that somebody engaged in valuable non-monetised work – and here only the example of household and child education work shall be cited – receives much less that his due share of social recognition. It is obvious that this has adverse effects on motivation and self-esteem.

But many problems also lurk in the monetised sphere of the economy for its participants. Many people strongly identify themselves with their jobs, they have endured long years of education often passing a rigorous selection process to attain their current job. In addition, they are facing the constant risk of becoming redundant. Since the productive activity of every person lies at the heart of our economy, it is not surprising at all that the social focus on this element of personality is extremely pronounced.

Nevertheless, a series of other activities are gaining importance in a society that is sometimes characterised as one of leisure rather than work, a concept that is not entirely true since much of the so-called leisure time is spent on voluntary work. In Germany, between one fourth and one third of the male working age population engage in honorary work. In the-

se cases, secondary or voluntary activities like sports, charities, community work etc. are also linked to the personality of the individual, more often than not in a very positive way. Even if these activities do not contribute directly to the monetised part of the economy, they are a valuable element that deserves recognition since they also add to the wealth and the welfare of people.

This development of increased differentiation of the various possibilities of productive work as complementary elements of personality is rather new. But it definitively helps in the judgement of the contribution of people to society and/ or the economic system.

We sustain again our philosophical prejudice: We are much more what we produce than what we consume. Even consumption, in a veblenian sense, is just a way to produce an image of ourselves. And the majority of people, we believe, are conscious that their value is very much linked to their level of self-esteem and usefulness in society. We definitely support the idea that in fact we consume and need to consume in order to produce, for ourselves and for society, rather than the other way around. In this context the question of work as an element of personality gains a whole new dimension.

Points of controversy

13. Employment and personality: from a unidimensional to a multiple-layer approach

According to the logic of the Industrial Revolution, it could be said that today working hours of full-employment (about 40 to 42 hours per week) correspond more or less to 50 % of the time devoted to employment one century ago.

But it would be wrong, we believe, to continue to extrapolate this trend and to suggest that current employment problems could be all but solved merely reducing those working hours by half again.

First, this would be totally to ignore the fact that it behoves us to ensure or at least to attempt to ensure that all human beings perform appropriate productive activities to their material and moral satisfaction. Secondly, it is obvious that the number of activities unrelated to remunerated employment has increased enormously. Each of us, were we to examine what we have been doing in the last 24 hours, would discover how much time is directly devoted to remunerated activities, and how much to personal maintenance and to the various functions necessary to organise our life and our continuing ability to perform remunerated activities. An important task in the coming decades for economists and entrepreneurs – and this includes as much individuals as institutions and businesses – will be to ascertain how and to what extent important activities necessary for the individual and society, when they fall out of the market because they become «too expensive», are recaptured by self-production and voluntary activities. In other words, remunerated employment might diminish in relative terms, but this could not necessarily be said of productive activities overall.

This also seems to suggest that monetarisation and in particular the monetisation of the economic system is not necessarily always an indication of increased efficiency. Greater efficiency can be obtained by promoting a different combination of the three forms of productive activity. This is what in fact is already occurring. Another important point is that, as a consequence of the Industrial Revolution (due to the essential role played by the monetarisation and the

monetarisation and the monetisation of economic activities), the quality and type of employment we perform has become an essential aspect of our personal identity. In most passports or identity cards, we are requested to indicate our «profession» as well as our gender. In future, people will be increasingly free to choose their own definition of profession from among their various productive activities they perform.

It must be stressed therefore that in the Service Economy, remunerated productive activity should not be seen simply as a reduction in working time, extrapolating the experience of the Industrial Revolution, but rather as one constituent of a very different organisation of work. For the problem remains: we must first and foremost organise society so as to develop to the greatest possible extent the wealth of nations for the benefit of individuals and of society.

One of the essential features of the idea of using public policies to promote jobs or employment is a basic first layer of work equivalent to around 20 hours per week: this strategy does not necessarily involve future reduction of work-time. It relates rather to the idea that productive activities within a lifetime, or indeed over any period, are, and will increasingly be, a “mix” of different occupations some remunerated and some not. Furthermore, the fact that the first layer of work would in principle no longer be an identity-defining reference occupation. This would increase its flexibility and acceptance within the public.

4.10. The question of part-time work

The question of part-time work is closely interconnected with general working-time and reductions in working-time. We have already touched the fact that what today is considered full-time would have during the last century corresponded to part-time work, since annual working hours declined from around 3,500 or 4,000 to under 2,000 for most industrialised countries. This development of steady working-time reduction has traditionally been part of the progress of allocating the gains accruing to workers from productivity growth between increases in income and increases in leisure time. Thus, the decline in weekly working hours and the increase in paid holidays observed throughout the industrialised world over many decades reflect the extent to which workers have taken productivity advances in the form of more leisure rather than more income.

More recently, the chronometrical dimension, i.e. the amount of working-time, has increasingly been joined by the chronological element, i.e. the distribution of working-time over different periods of time, often meant when talking about flexible working. More flexible working schedules appeal to employees who can enjoy a more individualised balance between work and leisure and to employers as a means to increase operating times. The introduction of part-time work on a broader basis has been an important factor in this development towards greater chronometrical and chronological flexibility. It has also made a significant contribution to employment growth over the last 10 years. The OECD reckons that people's demand for part-time work remains still large, suggesting a potential for a further development of such jobs in many countries.

The growing interest and government support in the recent past has lead to various measures designed to facilitate the

creation of part-time workplaces, be they shared or not, and to enhance the employment rights of part-timers. Some countries even have introduced financial incentives to encourage the development of part-time employment in the private sector, like France where employers' social security contributions are currently reduced by 30% on new part-time jobs. The public sector can play a leading role in responding to demands for more flexible working hours in general and part-time work in specific.

As a feasible alternative to otherwise unavoidable redundancies the development of part-time work is equally possible in the public as in the private sectors. Part-time jobs in the public sector have grown in many countries notably and now account for a considerable proportion of the employed personnel, e.g. in Sweden, according to the 1985 census data, about 40% to 50% of women ate the central state level work part-time. For the private non-agricultural sectors, the European Community estimated that 31% of women, but only 4% of men were employed in 1992 on a part-time basis. Although many men, and increasingly so, work part-time, it is women who make up the vast majority of part-time workers, about 85% in the EC.

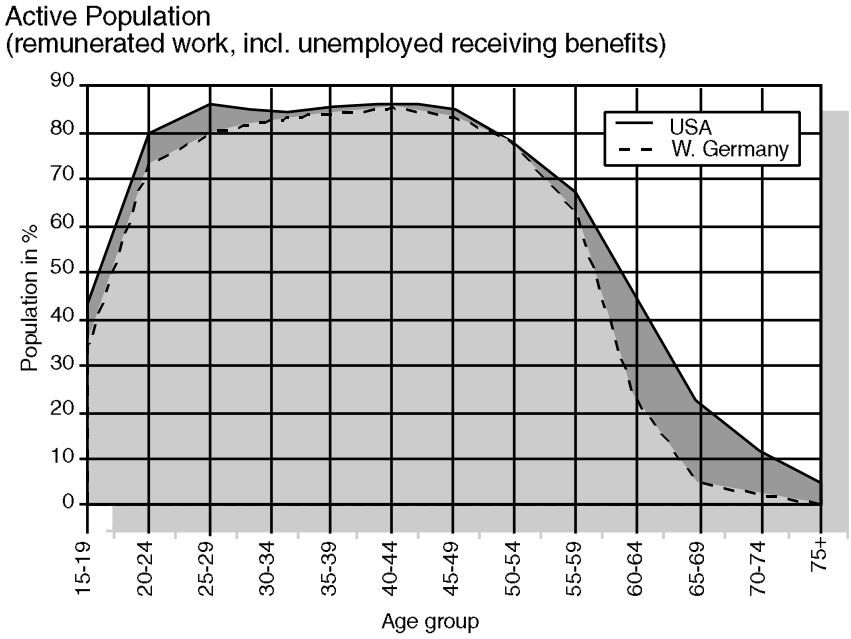
The advantages of part-time work for all parties concerned are manifold. Besides the already mentioned ones, the development of part-time work can contribute to increasing the number of people in employment, helping to cushion the socially and economically expensive division between employed and unemployed. Part-time workers may prove to be more productive and higher motivated than full-timers due to the reduced affects of fatigue, a better job organisation and the greater leisure time they enjoy. Improved possibilities to work part-time may also attract different groups of people who would otherwise not be in the labour force, thus increasing the produc-

tive capacity of the economy but diminishing the impact on recorded unemployment. These groups comprise married women with or without children, retirees wishing for a gradual reduction of their work-load instead of a sudden end, older workers with diverted interests, students who help financing their education etc.

4.11. Work in the life-cycle from 18 to 78

4.11.1. Work intensity in the life-cycle from 18 to 78

To identify the current work intensity in the life cycle, we have to examine the participation rates of people in the monetised labour market. This is the ratio of active population, i.e. all persons of either sex who furnish the supply of remunerated labour for the production of goods and services regardless of their employment status, in comparison to the total number of people in a determined age group. The higher the proportion of the active population in a specific age group, the higher their work intensity. This intensity is subject to legal framework, social influences and individual decisions.



Active Population Chart

Data source: ILO, 1995

As we can see, there is a sharp increase of economic activity at the age 15 until 24 as a result of the termination of secondary or tertiary education. Before the age of 15 there is usually, at least in industrialised countries, only negligible activity in the labour market. This changes when mandatory school attendance terminates and individuals can join the work force according to their personal inclinations and needs.

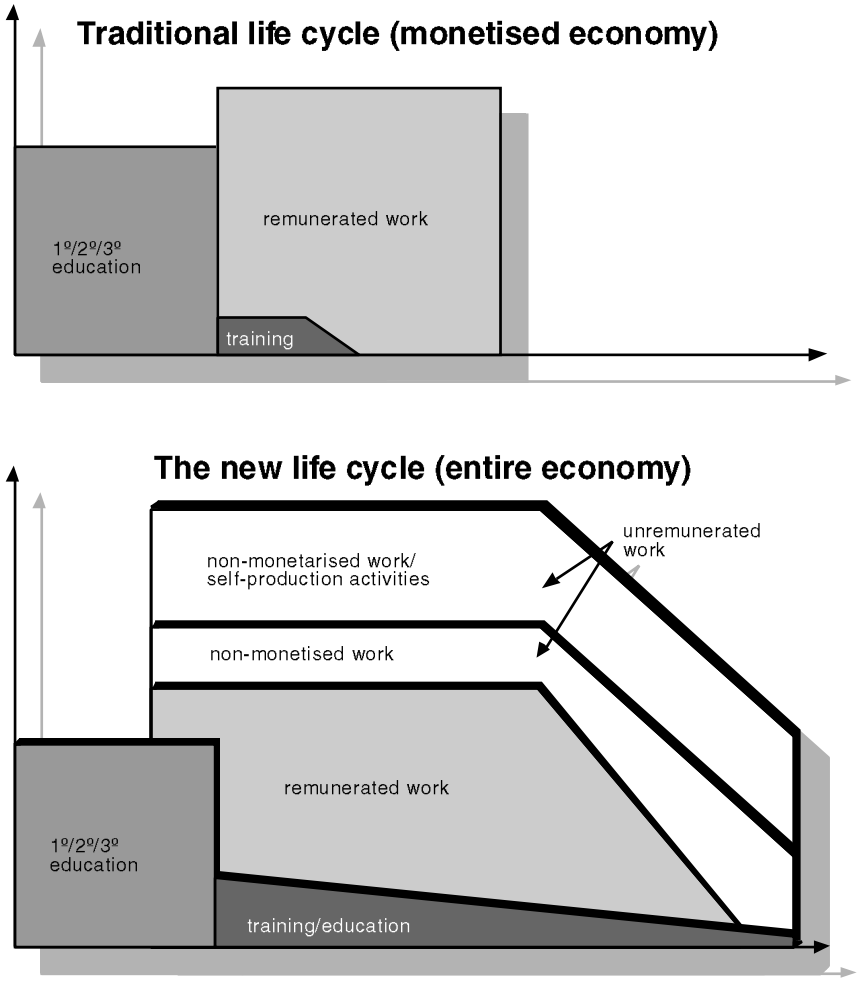
Afterwards, the work intensity is more or less stable over a period of several decades. For men, the proportion of economically active people typically reaches over 90%, while that of women tends to be considerably lower. Depending on the integration of women into the labour force, in various countries the activity level only rarely exceeds 75%. During this time, the participation rates of women exhibit a particular but very characteristic drop between the age of 30 and 39. An obvious ex-

planation for this phenomenon is the preference of women this age to spend their time dedicated to domestic and/ or child-caring activities.

At the end of the second phase we can observe that the proportion of people who provide labour supply diminishes gradually. It is the moment when retirement becomes a major factor in the decision on working time and economic activity. More and more people drop out successively from the labour market opting to spend more time in other activities than in remunerated work.

4.11.2. Education and work in the course of the new life cycle

If we accept the idea that the work intensity of the population is correlated to the individual preference of personal work intensity, we might arrive to a curve that is similar to the one denominated “individual preference” in the previous chart. It is the simplification of the depicted activity curves of the respective nations in so far as it displays a more abrupt start of working intensity after the termination of education and has to be regarded as being qualitative rather than quantitative in nature.



New Work Intensity Diagram

In chapter "" we have already identified the different phases of activity in human life. We will now propose an alternative system for the distribution of work and work intensity that seems better suited to the individual's needs throughout these different stages of economic activity. During the first phase of education, there should be an integration of part-time work into the tertiary education system on an official level. This would enhance the possibilities for the younger to gain wor-

king experience while still studying without necessarily submitting them to the stress of attaining an unsuited job besides being enrolled in full-time education. At the same time this would relief them of at least part of their financial problems. The integration of part-time work into the education system would also foster the connections between theory and practice and provide closer links between institutions of higher education and the rest of the economy.

During the second phase, there would be few changes as to the work intensity in general, the alternative layer-system of employment will be explained later in greater detail. This stage, however, will gradually phase out instead of a sudden end. There will be increased possibilities for the older to gradually retire by reducing their work-load according to their individual preferences and needs. They still have 20 years of life expectancy at the age of 60 and their gradual retirement could be a beneficial complement to the established three pillars of the social security system. It would also help to reduce the demographic stress on pay-as-you-go (or big scale capital accumulation) pension system in ageing societies. Voluntary work, already present to a lesser extent, might increase, in part as a non-monetised substitute of previous remunerated work since many older people like to stay active without necessarily the need or the wish for monetary compensation.

During all three phases, education or training and retraining will be present, albeit to different degrees. As we have previously explained, constant education is necessary to stay in the labour market and to meet the demands of an ever more complex and ever faster changing society.

4.11.3. Integrating part-time jobs for the younger in the period of education

The lack of experience is a serious handicap that young persons face when they enter the labour market. This problem, which is basically regardless of the level of educational attainment, becomes more prominent with increased age. According to the OECD, young people with higher levels of education face less risk of unemployment in most countries. Nevertheless, they are two or three, in some cases like Italy even five, times more likely to be (or become) unemployed than more mature workers with comparable levels of education.

The requirement for better and higher education should not deprive young people of their opportunities in attaining work experience. There is definitely a need to improve the school-to-work transition in most countries, especially since we are facing a situation where the typical age of obtaining a first degree from higher education is increasing, reaching 25 years in countries like Germany and Switzerland. The traditional sequential system where largely full-time attendance at educational institutions is followed by entry into the labour market seems to be only the second best alternative. A parallel system where part-time work is integrated into education appears to be more promising. The so-called “dual apprenticeship system” as implemented in Austria, Germany and Switzerland where a large majority of youths engage in training organised and run by employers as well as spend one day or two in educational institutions are examples on the second level of schooling. Unfortunately, the institutionalisation of such a dual system on the third level as well is receiving not enough attention. Usually, only certain “practice times” where students engage in short temporal work during certain spells of their hig-

her education have been established, a real dual system of higher education is largely unknown.

Eventually, virtually all young people make the transition from education to the labour market. The better they are prepared, the easier they will find an adequate job and the greater will be the gains for society. We have to establish a system where, on the one hand, the educational level is as high as possible, but where, on the other hand, the attainment of these high levels of education does not pose additional problems in form of degenerate possibilities for a smooth transition to the labour market.

4.11.4. Part-time jobs for the over 60's

First, we would like to prove a common prejudice wrong: older workers attribute in a very positive way to the success of their employers instead of being a burden like conventional corporate opinion. There exist quite a number of studies on this issue that demonstrate the general positive contribution of older workers.[60] They are experienced, reliable, work hard, are effective in their job, think before they act and display good team-working abilities. They are also subject to lower turnover and seem to be more flexible towards new assignments and changing work conditions as their younger colleagues. These very positive characteristics of older workers can and definitely should be exploited not only until the age of retirement, 60 years in most industrialised countries, but for a longer period.

[60] See e.g Warr, P. (1994): Research into the Work Performance of Older Employees. In: The Geneva Papers on Risk and Insurance. No. 73, pp. 472-480. Or The Commonwealth Fund (1991): New Findings Show why Employing Workers over 50 Makes Good Financial Sense for Companies.

Longer life expectancies and improved health conditions would permit this.

One of the major problems for the employment of older workers resides in the system of remuneration by seniority. Traditionally, older workers have been more expensive than their younger counterparts who, in fact, have been subsidising the higher wages of the former. This has lead to a situation where older workers might be paid more than their effective productivity, providing the employer with an incentive to get rid of them, or, in the case of general redundancy, to shed them first. The situation is even worse in some countries where the contribution to pension systems increase with age, thus making older workers even more expensive.

Nevertheless, there seems to be a new movement towards performance-based remuneration in many countries, especially in the Anglo-Saxon countries, that will promote the competitiveness of older workers. Part-time work in this context could attribute in a considerable way to the transformation of the remuneration system since the switch of older workers reaching retirement age from full-time to part-time employment with partial pension relieves some of the financial constraint, both for the employer and the employee.

However, the current distribution of income for the older population, those aged 65 and over, does still not reflect a major shift towards increased income from part-time work according to the EBRI.[61] Their data for 1994 show, that with 44% of total income social security is the largest source of income, followed by pension and retirement plans with 20%. Earnings, accounting for 15%, range even behind income from assets,

[61] Employee Benefit Research Institue (1996): Income of the Older Population. In: Monthly Newsletter. Vol. 17, no. 7, pp. 1-3.

amounting to 17%. The slight pick-up of the elderly's income from earnings from 13% in 1984 could be interpreted with caution, since it first fell from a previous peak 21% in 1974, as a feeble sign that things are changing.

The question of gradual retirement as a complement to the established three pillars of the social security system and as an expression of personal choice and individual preferences is closely linked to part-time work. Even in countries like Germany, France or Japan, where rather traditional attitudes to part-time work have dominated for long, attitudes are starting to change. Especially the wish of the over 60s for more flexible ways to organise their lives have contributed to the increased recognition of more flexible work patters.

So far, the experiences with part-time work as the compenent of a gradual retirement are mainly positive.[62] Introductory organisational problems can be overcome rather quickly and the initial investments in extra administrative, planning and sometimes equipment cost are compensated through reductions in absenteeism, increased flexibility, improved morale and productivity growth. It is noteworthy that ignorance appears to be one of the bigger obstacles towards part-time work of older worker, especially when they are past the official retirement age. People tend to be sceptical where part-time work has not been experienced, but where developed, it is generally welcomed by supervisors.[63] Also younger colleagues can benefit through an endowment process of valuable skills from the development of part-time work for more experienced workers that would otherwise be fully retireing.

[62] See Delsen, L./ Reday-Mulvey, G. (1996): Gradual Retirement in the OECD Countries.

[63] Delsen, L. (1995): Atypical Employment: An International Perspective.

Since generally the benefits of part-time work for the older outweigh the costs, there are structurally and medically no obstacles, and practice shows that many more tasks could be performed by part-time workers than is currently the case, the development of part-time proves an ideal way of lengthening and/ or flexibilising the working life.

Points of controversy

14. An ageing or a younger society?

The best indication of the success of the Industrial Revolution is the increased and still increasing life expectancy in almost all parts of the world.

This phenomenon is frequently described in terms of the old thinking. It is, for example, said that «society is ageing». If what is meant is merely that most people today achieve an older age than they expected to 50 years ago, the statement is acceptable. But in itself the expression of an «ageing society» is inappropriate and misleading. We first need to recognise that there has been an increase in the length of the life-cycle by comparison with which the many horrors brought about by wars, upheavals, natural and man-made catastrophes are of minor relevance. Second, it must be observed that what is really becoming «older» is the notion of age itself. we only need to read in the European literature in the last century to know how people felt at 40 years of age. It is also clear that the onset of physical mental decline has been pushed back far later than was the case in the past. In other words, at 40, 50 or 60 today, we are much younger than we would have been at those ages in the not so distant past. Therefore our societies are getting younger, because we live longer.

Failure to understand the situation in these terms can lead to catastrophic mistakes: on the one hand, we tend to marginalize far too early a growing part of the population (those over 60 years) and on the other, we quickly run aground in the political debate about how far the younger generation should pay for the older. On both accounts, we find

we have entered a dead end street!

We need to turn the proposition about on itself: the "older" are today "younger" and because the value of human beings is linked to their productive activities and endeavours, the key social and political challenge of the coming decades will be to what extent society succeeds on average in involving people from 18 to 78 years of age in the global venture of creating and sustaining the wealth of nations. There are already clear signs, that things are beginning to move in this direction, although the global picture is as yet far from homogeneous.*

The Industrial Revolution contributed, partly out of necessity, to selecting the «breadwinners» (those with paid employment) within society. In the Service Economy, where the value of productive activities of all three sorts (paid work, self-production and benevolent activities) is recognised, we have no need to reinvent the seclusion and marginalisation that were typical of the Industrial Revolution, in particular for women and later on for the younger and the retired. We can now set ourselves the task of building a dynamic, integrated society where the worth of individuals is recognised through their productive endeavours and potentials of all kinds.

This notion of human potential was the key source of inspiration for Aurelio Peccei when he founded the Club of Rome, and it has aquired growing recognition even with the more classical and neoclassical among economists through the notion of human capital, which in turn has paved the way for acceptance of the idea that it is on the supply-side that value is produced.

* Cf. Delsen, L./ Reday-Mulvey, G. (1996): Gradual Retirement in the OECD Countries.

4.11.5. Work and activity for the disabled and the problems of the fourth age

Disability is always also a question of definition since drawing the line between abled and disabled requires a set of controversial and disputable normative values. Somebody with reduced eyesight might not suffer any disadvantages in an environment where focused seeing is not a prime requisite for working but would have to be considered disabled if he were a fighter-pilot or micro-surgeon. A pianist would become disabled if he lost the fingertip on his left hand while top athletes have been known to suffer from far major health disadvantages without preventing them from being very successful. Therefore, there is no such thing as a clear line of division between disabled and not, things have always to be put into perspective. This does, nevertheless, not prevent our society to aim for the best inclusion of all people suffering from a handicap, and we are not speaking exclusively of physical handicaps, into our social and economic system.

The disabled make up at least 10% of the world's population according to the United Nations. They include all those who have experienced some sort of injury, trauma or disease that results in long-term physical or mental changes. While disabilities are common to both industrial and developing countries, the sources tend to be different. In developing countries the reasons for suffering from disabilities are more likely to be disease, malnutrition and war. Degenerative diseases associated with ageing are the primary causes in industrialised countries. This is also where the so-called fourth age comes into play, that is often accompanied by advancing deterioration of health. Nevertheless, the fourth age has nothing to do with growing disabilities, it is merely a term to distinguish what used to be the third age from what are today the very old or super-old.

According to a study by the French insurance company SCOR on long-term insurance care the dependency rate for at the age of 70 is less than 5% and does not rise over 10% before 80 years of age. Thus, even older people experience a great degree of independence and relatively good health. The deterioration of health and growing dependency starts somewhere beyond 80 years of age where within just 15 years it soars to 50%.

Disability is often closely linked with poverty, even in industrialised countries. In the United States, blacks and native Americans are twice as likely to be disabled as whites, and children in poor families are 13% more likely to be mentally retarded than those in middle- or upper-income families. The same holds true for most other regions of the world.

On top of their already unfortunate situation, the disabled face many barriers to social and economic participation: they have less access to education and they are more likely to be unemployed. As a reaction to this situation, some countries have adopted measures improve their economic opportunities. In Germany, there is a quota for the employment of disabled workers of 6% in both the public and the private sectors. The 1992 Americans with Disabilities Act prescribes many different standards in working life in the USA.

The recent technologic changes, mainly the growing importance of information technologies in the production process and the growth of non-physical jobs in the service sector, offer new and increased opportunities to the physically disabled. Whereas in the past most work entailed a large part of strenuous physical exercise and productivity was linked primarily to the dominance of mechanical actions, the new Service Economy offers a range of work places that are knowledge-centred. These works can be carried out by many physically disa-

bled people much in the same way as by their colleagues without disabilities. In some cases, especially for those with severe disabilities or suffering from mental problems, insuperable difficulties will still persists, but, nevertheless, for a large part the situation has changed and will continue to change for the better.

4.12. A multi-layer system of work

Puntos de controversia

15. A multi-layer system of productive activities

Even if we stress the fact that in the Service Economy, self-production activities as well as benevolent or voluntary activities have relevant economic value, yet it is obvious that in a modern, post-industrial society, a substantial part of economic activity will remain organised around the use of money. In terms of employment, this would imply that social and individual ingenuity combined should aim to provide every human being with a minimum of remunerated productive activity. This will constitute what we call "the first layer" of productive activity.

A "second layer" of productive activity would be composed by all remunerated work above or instead of the first layer or level. This second layer should be entirely free in terms of government intervention, unless for reasons of providing a legal framework. For probably a great number of the individuals working, second-layer activities and occupations would render first-layer productive activities unnecessary. If individuals wish to do so, they can combine several part-time second layer activities instead of only having one occupation.

A "third layer" of productive activity, finally, would for all of us be constituted by self-production and non-remunerated

voluntary activities. These latter are frequently interdependent and, particularly in the modern Service Economy, as we have said, constitute increasingly a key condition for the efficient functioning and development of the monetarised system.

We need to stress at this point how important it is – a matter of high priority – that every single individual in society, capable of doing so, be given adequate opportunities to develop productive activities.

It is also clear that the three layers of productive activities can and will be differently organised during the life-cycle from a 18 to 78 years of age. The young are already often seeking a part-time activity which will enable them to develop their independence and capacity of judgement within an occupation while at the same time continuing their education. The older have still much to offer to society, and, at the age of 60, cannot simply envisage a future of at least 20 years of idleness, even if adequate financial guarantees can be provided by the state or another institution, including in the private sector.

Two additional important points have to be taken into consideration. The first is the idea, already found to be wanting, that, precisely because service functions and jobs represent about 80 % of remunerated employment in contemporary societies, they can bring back by themselves a situation for full employment. Here, once again, the underlying error stems from slavish extrapolation of a traditional concept valid at the time of the Industrial Revolution. It is true that at the time of the classical Industrial Revolution, any new technological advancement which would put a limit or make a process or a product obsolescent was likely to globally increase employment by stimulating many new other possibilities. Nevertheless, these advancements and their positive effects on employment have been achieved under different circumstances.

What needs to be considered is the global structure of wealth production in the Service Economy. Many activities based on remunerated employment are scrapped or transferred to other types of activities, which operate outside the monetarised system. For a clear view of what is really happening, we need a new economics. A new economics that considers the efficiency levels of the monetarised system and their

limits and their transformation into non-monetarised production systems.

The other point concerns the utilisation of the market as a final arbitrator of economic policy to the extent that limiting social welfare programmes and entitlements is the price one has to pay for bringing the level of salaries low enough to absorb any unemployment. What we need to ascertain is how far, under these conditions, full remunerated "free" employment actually increases the level of poverty in a society. Here again, a lower level of remuneration can only be acceptable if the two other activities, the non-monetarised self-production and the non-monetised benevolent activities, create sufficient wealth to keep living standards at generally acceptable levels.

We need, therefore, to build up a vision and a strategy for wealth creation in a world where the mobilisation of human and material resources should make us all richer than we were in the past in terms of a real increases in the quality of life.

4.12.1. Basic suggestions for a new full-employment policy

We will shortly focus again on the basic premises and context of a new policy that is aimed at promoting full-employment as far as possible. It is crucial for the comprehension of the new concept that the realities of a transformed society and economy are understood. We have to accept the fact, that we live in a Service Economy where, once a target for economic and social wealth has been defined, we need to combine the three modes of work and productive activity to reach it: employment (remunerated work), self-production non-monetarised activities, benevolent productive monetarised but non-monetised activities. This combination of the three forms of

productive activity is not based on any declaration of good will, but on an understanding of how a Service Economy really works today.

Due to positivistic implications this requires an economic approach which for moral reasons brings supply back to a centre-stage position: work, indeed any productive activity, is the most obvious and fundamental expression of our personality and of our freedom. We are, first and foremost, what we do. It is imperative therefore that social policy consider people as human beings deserving of opportunities to "produce themselves". This is not to say that demand systems need not be considered. But such systems must be used as selection mechanisms for choosing and using what supply has to offer. Supply, even in economic systems, is always in excess, and demand selects what is offered. Inventiveness, initiative and the entrepreneur are to be found on the side of supply. Without demand though, supply might grow like a cancer in the wrong direction.

A key issue also is the redefinition of the role of private and public initiatives and activities. Throughout the Industrial Revolution, the role of economic theory was to define what were deemed public utilities for which the government was alone responsible. According to the culture and political regime of each country, there was therefore a vertical allocation of productive activities, sector by sector, between the State and private institutions.

In the Service Economy, this vertical, sector-by-sector, distribution could be replaced by an horizontal one. The State, internationally, nationally and locally, could intervene at different levels and in various ways so as to provide the equivalent of basic employment, consisting of possibly around 20 hours per week, corresponding to about 1,000 hours per year, organised in various ways and for various periods of time. This

should not be considered merely part-time employment but the basic unit of formal work. These basic layers of work should be remunerated at a guaranteed minimum level corresponding to the idea of a negative income tax system. Accepting the work of this first layer is a necessary precondition for receiving state benefits that will be distributed as salaries according to individual needs, taking into consideration regional and local differences etc.. Individuals that are not willing, for whatever reasons, to provide their human capital in return for a minimum salary, that will allow them to subsist on a very moderate level, will not be entitled to receive state benefits. Beyond these first layers of paid employment, all government or State intervention should be prohibited, so that in practice the first layer would, on the one hand, provide a minimum to act as a social net and, on the other, guarantee the maximum development of the private initiative. The role of the state beyond the first layer is limited to providing the best suited legal framework for an efficient and dynamic economy to develop according to social consensus furthering as much as possible entrepreneurship.

One important psychological aspect of this first layer of work would be the effect of decoupling the definition of personality of the individuals from the specific level or function of this type of jobs. After all, there are in our society a lot of people who perform a socially high level or prestigious activity: When they also serve in a military or in a social service type of activity, they do not feel they are somewhat socially downgraded, quite the contrary. Individuals would have the freedom and even the stimulus to define themselves in terms of their own image and of society for activities which they deploy beyond this first level of activity.

Points of controversy

16. The new "full-employment policy"

(I) Basic reference

- supply as the centre of economy
  - demand as a selection process
- new definition of wealth (as opposed to the traditional measurement of GNP)
- work is the expression of personality ("we are what we do") and dignity
- necessary combination of the three modes of work:
  - remunerated work (employment; monetised);
  - benevolent productive activities (monetarised, but non-monetised)
  - self-production activities (non-monetarised).

(II) The Implementation

- state intervention to provide a first layer of basic employment as far as possible
  - remunerated at a minimum level
  - equivalent to approximately 20 hours per week
  - in exchange for state benefits
  - first layer applicable to people aged 18 to 78
- no state interventions beyond this first unit of work
  - provision of a minimum social net
  - maximum development of private initiative
- free entrepreneurial activities beyond/ instead of the first layer
- definition of "profession" according to second layer of activity
- possibilities for the younger to gain working experience while still studying
  - closer connection between theory and practice
  - closer links between institutions of higher education and the rest of the economy
- possibilities for the older to gradually retire
  - 20 years of life expectancy at the age of 60
  - gradual retirement as a complement to the three pillars of the social security system
  - reducing the demographic stress on (pay-as-you-go) pension systems in ageing societies
- introducing greater flexibility on labour markets
  - higher recognition of non-full-time work in society
  - greater choice of activities for e.g. educating parents

4.12.2. Providing a first layer of work

In organising the first layer it should be taken into account, that although it would correspond more or less to what is today considered part-time work, the notion of part-time should be abandoned and instead the first layer be considered a basic unit of work. Since this layer of employment would only concern a very small part of the time available in everyday life, it would allow for a more flexible definition of individual personality, reflecting the full range of the individual's productive activities. An individual's professional and personal identity would not necessarily therefore be based on first-layer work, but rather on his or her second-layer free entrepreneurial activities.

The basic unit of work, equivalent to a part-time job and remunerated at a minimum level to avoid absolute poverty, would concern people between the ages of 18 and 70 or even 78 years. The three major population groups belonging to categories of generally excluded people from the Industrial Revolution, i.e. the young, the old and women, could through this project achieve social reinclusion in a most productive way. The young would have more opportunities for combining a practical job experience with education and at the same time be able to learn how to self-support themselves. This would also help to create a demand for higher education institutions like universities to be better integrated in society through personal and practical links between theory and practice. Women with small children, but also men in similar situations, wishing simply to organise their family life differently would also benefit from this system. Finally, older people, who around their 60s would start a period of gradual retirement but who could also continue to feel useful in society and above all remain ready, at their mature, to use previous experience and a lifelong educa-

tion to prepare themselves for new productive activities, both in the monetarised and non-monetarised system.

Especially this latter would help to provide security and better social integration for older people who at 60 still have a life expectancy of 20 years. In such circumstances, the possibility to obtain and the general provision of a part-time job (remunerated or partly remunerated, or supported in a non-remunerated activity) would constitute an essential complement to the traditional three pillars of the social security system (government pensions, occupational pensions and private savings of all sorts). It would also reduce the burden upon the younger generations of supporting a growing older population and thereby place all of them, young and old alike, in a much better position economically and culturally to develop appropriate activities.

We have already stressed that this first layer is not to be considered a part-time job in the traditional way but simply a basic unit of reference for direct and indirect public policies. Therefore, all financial resources currently earmarked for additional unemployment benefit, income support and welfare aid should converge to form the financial basis for such schemes. We can after all already detect in many places the growing pressure gradually to transform these financial transfers into some form of salary to stimulate people back to work. People should be helped to be active and not be paid to remain idle. They are all producers and not consumers in the first place.

The basic unit of full employment, corresponding to what today is defined as part-time employment, constitutes a very large part of the employment environment as a whole. In Europe, over the last 20 years, more part-time jobs have been created than the traditional full-time ones. Many of these part-time jobs are of course not necessarily of a type acceptable to those

seeking employment. On the other hand, they are an almost ideal solution for a growing number of people. Where part-time jobs are underprotected in terms of normal social security standards, legislation and regulations will be needed to remedy the situation. This trend is already a verifiable reality and such a movement, which started a few years ago in many industrialised countries, should be continued. Part-time jobs at all ages but in particular for older people were once penalised in various ways. The fiscal system, the educational system, the very organisation of the three pillars of the social security still often make part-time jobs inefficient or difficult to make a success of. Many practical measures can be taken step by step in individual countries to improve the situation.

In many cases where part-time work is introduced, employers not just substitute two new part-time jobs for one previous full-time work place, they sometimes set a dynamic development in motion, much in the sense of an economic acceleration process. It appears that through the enhanced productivity of part-timers more employment can be created in a more efficient environment. Two part-time jobs are not just equivalent to one full-time job, they are more productive and therefore more valuable, leading to an improved situation where the simple equation of one plus one adds up to a little bit more than two. The same could hold true for a basic layer of employment.

More and more companies in a variety of countries, faced with the problem of dismissing older workers on the one hand and of hiring young ones on the other, are adopting innovative schemes which involve developing activities to create the equivalent of part-time jobs. These initiatives are valuable and should be fostered. Governments, especially locally, but also nationally and internationally, can devise many incentives or situations to facilitate and encourage the development of the

basic unit of the first-layer full-employment. As a further step, one could rationalise and develop appropriate initiatives where public authorities intervene directly to provide the equivalent of part-time jobs. One of the main concerns today is with social services, especially when compulsory military service is giving way to professional army, since they would lose many of their currently engaged work force. The necessity to provide a first layer of work meets in this case the demand for cheap and in most cases low skilled labour. Of course, an adequate rearrangement of the social services would be necessary.

Furthermore, the connections between the monetarised and the non-monetarised economies have to be better understood and developed: indeed, many initiatives, without fully acknowledging this fact, have already incorporated something of this approach. The effort to reduce hospital costs is one example. Implicit in the enormous drive to diminish the cost of hospitalisation is a call for self-production activities of the family or of the friends who are expected to take over what within a hospital system is completely monetarised. The same applies in the case of the care of children whose parents are at work. One either seeks a fully monetarised solution (investment in nurseries) or one mobilises private homes to use their facilities for that purpose (something that is already happening with millions of grand-parents) and leaving the public authorities to intervene at two levels: verification of the adequacy of personal infrastructures providing such “home” services and the provision of some financial help, encouragement or fiscal advantage for those undertaking such tasks. The total cost of the latter solution would in that case be much lower than merely relying on a totally monetarised system. Discovering and utilising the interdependencies of monetarised and non-monetarised activities systematically opens up new and interesting possibilities.

We would urge that serious consideration be given to non-monetarised activities, i.e. those performed by people for themselves and which as such are not subject to a system of exchange. Incentives or an appropriate environment should be considered also as an economic means to a greater level of wealth when this is then achieved through self-education, self-repair or self-healing activities. In addition, many benevolent activities, which avoid paying others for work, can be encouraged even further through the normal development of society.

A key issue for policy design will be the quantification of the increase of wealth produced by self-production and the non-monetised activities. The recognition of this increase in a more adequate economic theory and its evaluation through proper indicators will be essential.

Points of controversy

17. Polícies for Developing the First Layer

- all resources currently used for additional unemployment benefits, income support and welfare aid will form the financial basis
  - no payments for remaining idle but help for staying active
- the activities of the first layer will in many cases not correspond to individual preferences
- adaptation of legislation and regulation to adequate social protection
- no economic or social penalisation of non-full-time jobs
- no payment-by-seniority but payment-by-efficiency system.
  - avoidance of substitution of older workers through younger ones
- governmental policies to stimulate and incentivate the development of the first layer
- where necessary direct state intervention to provide first layer
- higher recognition of non-monetised activities
  - private "hospitalisation"/ nursery/ home service etc. as complements to fully monetised solutions
  - important: quantification of wealth produced through self-production and the non-monetised activities

4.12.3. The key role of a second layer of private initiative based monetarised employment

We have already suggested the possibility of stimulating, at the public level if necessary, the availability of at least a part-time remunerated job. It is only on this function that government social policy should concentrate. This is even more important not only because of the growth of the population, but also of the longer active life cycle of which mankind is now benefiting. This official stimulation and in extreme cases provi-

sion of a first layer of work should as little as possible interfere with a second layer of work, that resides entirely in the monetarised private sphere. There is a very fundamental misunderstanding to be avoided: The development of a public policy aiming to provide a minimum part-time job (roughly of about 20 hours per week or 1000 hours per year) is not conceived as a substitute for private initiative. Quite the opposite, the limited time of work and the relative meagre compensation does not preclude nor discourage, for those who might need to benefit from it, the addition of – or the complete substitution of the first layer by – a second activity which would be entirely linked to their own initiative or in any case to a private type of "production".

We believe that in a modern society the anxiety to remain without any sort of employment should be eliminated as a goal and that this would reinforce the possibilities for private initiative above or at the place of this first-layer work. The second layer of monetarised work is to remain at the centre of the economy, allowing any individual to substitute the first layer completely by taking up a remunerated job of his own preference. As such, the second layer of economic activity corresponds very much to our current system of career employments, but in a very flexible way.

Individuals are free to decide whether or how much they work on this level. It can comprise as little as one additional hour per week to the basic work layer, for example spent on remunerated private teaching, or as much as 80 to 100 weekly hours, then in substitution of the first layer of course, which corresponds to the work load of economically very active people. Naturally, the monetary income of people in excess of what they absolutely need to subsist above the poverty level depends on their endeavours in the monetarised part of the economy. Payments will be determined in exactly the same way as they

are now, leaving this dimension of the conventional system of obtaining income largely untouched.

Compared to our current economy, the second layer of work has to be and will be more flexible since it has to comply with the preferences of very different groups of our society. It will gradually erode the conventional concept of a more or less fixed working week of 40 or 45 hours, adapting the organisation of work to the exigencies of the people involved. As a consequence, it will fit more and more in the interests of those doing it, gaining in productivity through higher morale of those employed.

The second layer of work also provides the means to obtain additional income during retirement via occupational pensions and private capital accumulation and later melting. Traditional state-organised pension systems will be complemented by these two other pillars of the social security system. Already, there is a movement towards enhancing and diversifying future old-age income.

4.12.4. A third layer of productive non-monetarised and non-monetised work

On top of the already mentioned first and second layers of work, there is a third one. It comprises all fields of non-monetarised work as they were mentioned in chapter “” in addition to activities on the subordinated two levels. The work of the third level is in contrast to the previous two unremunerated and voluntary in nature. It is therefore a complement in the sense that the active person contributes to the welfare of the society or of a part of the society without any compensation in monetary terms. Many activities that have either no market value or whose market value cannot effectively be assessed are possible activities of the third layer of work.

There is a strong contribution to our society of non-monetarised work and many people are already engaged in such activities. In Germany, the Commission for Demographic Change states a very high activity level of the population: 27.2% of men aged 25 to 34 and 16.3% of women in the same age group are engaged in some sort of benevolent or voluntary work on a regular basis, many of them as honorary members of the board. Most of this work is carried out in the health, social, cultural or political sectors of the economy. This high level of activity remains fairly constant throughout the life cycle. The next higher age groups, those aged between 35 and 44, those between 45 and 54 and those between 55 and 64, display activity levels of 29.2%, 25.4% and 28.9%, respectively. The equivalent female figures amount to 16.3% and then drop to around 13%. This proves the theory of constant voluntary activity during all stages of life correct.

The Seniority Expert Service in Germany expects future changes in voluntary work and the inclination to take up such work: more and more people will probably provide more and higher skilled work without expecting monetary compensation. Especially the elder are willing to share their experience and their personal connections either here or in developing countries with other less unfortunate people than themselves.

Points of controversy

18. Considerations on the Layer-System

- modern society absolutely requires a minimum level of monetary instruments
- limits to the efficiency of the monetarised and especially the monetised economy
- in the Service Economy sectoral transfers of productive activities occur no longer only within the monetised system
- integration of monetarised and non-monetarised activities to define the wealth of a society
- two options:
  1. traditional notion of a monetised employment system:
     - unsolvable unemployment problems
     - (distorted) perception of decreasing capacity to produce wealth
  2. integration of non-monetised and non-monetarised systems into the definition of wealth and wealth creation:
     - more realistic perception of economic reality
     - new conclusions pertaining the economy
     - more optimistic outlook regarding the capacity to find new solutions to employment problems
     - no utopia but a new approach that (accepting uncertainty) could be falsified

5. Basic suggestions for government policies and for social development[64]

While we are all children of our time, predetermined by the surrounding environment and the society we life in, we have to overcome reigning frameworks in order to possibilitate the necessary transformations if the world is to change for the better. Fundamental ignorance, exaggerated risk-aversion and the resistance to changes for the sake of suboptimal but known and familiar solutions are essential factors that hamper positive human development. The following suggestions for government policies and for social policies are an attempt to overcome the limitations of the present system by assuming a different stand-point and introducing new elements. These suggestions can, of course, with time be proven wrong or in itself limited, but for the moment they represent a possibility to tackle the pressing problem of unemployment and the future of work.

Points of controversy

19. A social policy for a full employment of human resources

It is important first of all to consider under which conditions the modern Welfare State was developed during the first part of the century and in particular in the decades after 1930. This was the time when major economists (Keynes, Hicks) underlined the necessity to stimulate the process of Industrial Revolution essentially by managing demand. Economic theory and political economic practice, as it turned

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[64] We do not wish to discuss the highly complex question of governance and governability as it would overstretch the framework of this report. The Club of Rome has been treating this issue in a very extensive way in the past and will continue to do so. As a reference for readers who have a pronounced interest in the problematique, we would like to cite the inspiring report to the Club of Rome by Dror, Y. (1994): The Capacity to Govern.

out, matured the view that the origin of economic crises in the past had to do with great elasticity of supply and production capacity which could not be absorbed by an insufficient level of solvable (monetised) demand. In other words, people did not have money enough to buy all that it was possible to produce.

It is, however, a crucial fact, although not always recognised, that the great elasticity of supply generated deep social and economic changes. The workers' unions, by campaigning for wage rises for the working population, became in a sense allies of the "capitalists" in the building up of greater consumer capacity with which to absorb larger and larger amounts of goods. Hitherto looked upon in general as an instrument of social upheavals, the Unions could now profit from this situation and benefit from growing acceptance as a legitimate institution in society – with beneficial effects for all parts of the society. The self-same logic could be used to transform social welfare problems into another instrument for increasing demand or realising existing demand potential. For either of these situations has been brought about merely by changes in outlook. Both are rather the result of the new material conditions which have made the altered social (and mental) changes possible.

The current fight against real inflation has been waged for over 20 years, and has in many instances tended to polarize the economic debate around two contradictory ideas: on the one hand, the delegation of greater powers to central banks in order to control inflation and, on the other, the attempt to stimulate consumption in itself no very difficult task, but which, if allowed to go too far, can very quickly revamp inflation.

It is in any case clear that, in the current situation of a Service Economy where it is increasingly the producer, and not the consumer, who is playing the hero's role, where wealth production depends on service activities and where productive activities are increasingly an integrated mix of remunerated, non-remunerated and non-monetarised activities, the bases for all social policy have changed very radically. To this complex of new conditions we must now add a lengthened life-cycle.

It would seem reasonable therefore that social policies are reorganised so as to achieve the stated goal of aiding individuals to enjoy their rights to be productive rather than remain simply passive consumers. International, national, regional and local authorities should focus measures on providing directly and indirectly all sorts of incentives and initiatives in order to reach full-employment equivalent an agreed minimum amount of remunerated work. It is a matter of debate as to whether this minimum could be achieved via a strategy targeted to promote sufficient remunerated part-time works to achieve full-employment as redefined. Or whether, as has been attempted in the United States with "income support", governments might intervene to top-up wage levels which would otherwise keep earners below the poverty line.

In any event, it is clear, that public institutions and public policy would have an important part to play in this venture. At the same time, the fact all remunerated activity beyond and instead of first layer employment would be entirely a matter for private initiative should provide the guarantee that public intervention in economic affairs could be kept to a minimum acceptable level.

The subdivision between the public and the private sphere would not, therefore, be a problem of sector activity but rather of different layers of work as state intervention is limited to the first layer, which should act as a stimulus to individuals in search for independent initiatives and activities.

The level of poverty would be defined not only in terms of remunerated work but also in terms opportunities to increase personal and general wealth through self-production and benevolent activities. Economists should learn more about how to evaluate projects where priority is given not to seeking only monetised alternatives to difficult situations, but to propose adequate accounting for the transfer to alternatives in the non-monetised and non-monetarised systems, as happens, for example, when attempts are made to use family structures in substitution of hospital costs.

The debate should be also be stimulated concerning the policies with respect to inflation. Inflation, especially in an

era of long-term life-cycles, is the surest way to destroy the results of individual efforts in the long term. Even a 2 to 3 % inflation per year halves the capital-value of an investment over 20 years. The hope for a compensation of inflation through the perseverance of real interest-rates or profit-rates is by necessity very volatile.

The effects of a very low level of inflation or even deflation, which affect the purchasing power and the demand of the population and subsequently the efforts to save and to work, should be discussed in depth. Not forgetting that real wealth is a question of real purchasing power, not only in terms of money, but in terms of all the goods and services deriving from self-production and benevolent systems.

5.1. Developing an economic environment for a dynamic private initiative development in the key second layer employment strategy

Despite the obvious signs on the horizon, governments stubbornly continue to apply concepts from the Industrial Revolution which often favour low investment loans rather than labour subsidies, or punish prowork attitudes of the unemployed instead of promoting creative occupation.

One of the reasons for this is that, during the Industrial Revolution, governments, like industry, evolved through a similar pattern of centralization and economy of scale, and are today facing the same problems as many industries. Government is generally large-scale, centralized and cautious, while small enterprises are local and entrepreneurial in their attitude. Relations between the two can never be easy. However, local employment initiatives based on activities satisfying local needs and using local resources will be best placed to promote re-

gional development and economic growth in a bottom-up approach. Examples of this are the promotion of local employment initiatives (LEIs) by OECD and the Commission of the European Communities in industrialised countries, and the labour-intensive Special Public Works Programmes (SPWP) launched by ILO and various countries in the Third World with financial aid from UNDP. The latter, however, often translate into a redistribution of political power, and thus raise immediate objection from central government.

Similarly, the present anti-work attitude of governments in dealing with unemployment insurance is based on central instruments to control the unemployed and prevent abuses: no dole money for people who work or refuse state remuneration for doing boring jobs. A pro-creation attitude that encourages people to employ their skills and talents in the monetary or nonmonetary sectors of the economy (own work, self-employment, community do-it-yourself) needs a decentralized, tailor-made approach for which civil servants have not been trained. New situation of unemployment of 50% or more in Central and Eastern Europe, i.e. in industrialised regions, ask for a radically new approach towards pro-creation solutions. In the UK, for example, only 10% of the people who became self-employed in 1984 did so through the government's enterprise allowance scheme.

High unemployment may prove to be the major driving force: manual workers in particular feel better if they can say they are self-employed, rather than unemployed. Among the 273,000 newly self-employed in the UK, the majority said (during a labour-force survey), that they had previously been unemployed or economically inactive (e.g. housewives and retired). Manual workers accounted for 31% of those who switched from unemployment to self-employment, but only 16% of those moving from employment to self-employment.

France, a successful example of top-down policy applied in a decentralized way, promotes bottom-up initiatives and leaves all options open to the individual. Here, the concept is one of paying a newly unemployed person a lumpsum corresponding to the capitalized amount of one year's unemployment benefit, if he decides to start his own business.

State government has also become involved in social security as protection for waged workers and their dependants who become unfit for work though illness, accident, or old age. Again, the same problems of preventing abuse and of applying a central policy to a wide range of situations are encountered.

Another crucial issue is the implications for fiscal policy of part-time employment and the revalorization of non-monetarised work. While in the first area, government can be encouraged to play a progressive role, in the second, a highly conservative reaction is only to be expected. It is here therefore that much research into proposals for adapting fiscal policies to the growing reality of part-time work and of non-monetarised jobs has to be done. Part of this great issue is the problem of accepting the fact of the existence of an underground economy and of reorganizing its benefits to the extent that such an economy remains within the bounds of legality. The problem here is to be able to preserve and even to stimulate its creative and productive aspects.

All such state intervention leads to the question of the importance of the state as an income provider, and its efficiency in this role. In the five big countries of Western Europe today, more than half of all adults depend upon governments for all or part of their weekly income: e.g. wages for civil servants, pensions for the elderly, dole money for the unemployed. This suggests that as many as three-quarters of all families in Britain, France, Italy, Sweden and West Germany have at least one

member whose main income comes from national or local government and state agencies. Even in free-enterprise America, 42% of all adults are financially dependent on public money. However, whereas in 1951, the biggest single public employer in every country was the armed forces, today, soldiers, sailors and airmen are outnumbered by armies of nurses and teachers: 40-50% of all public workers are in health, education and other social services.

If the nation-state has become the number-one source of income, then its attitude in distributing this income becomes crucial: Does it encourage risk-taking? Is this done in an efficient way? Does its structure correspond to people's needs? Are there any alternatives to the present highly complex system? The basic income scheme of the three layers of work could perhaps provide one.

5.2. Enhancing the value of non-monetarised work

It is important to devise methods for evaluating and quantifying the level of wealth. In this sense, the World Bank took a major step when it started publishing statistics about the real purchasing power of the incomes generated in various countries. It should be noted that such purchasing power for each countries is merely an average and that there is considerable variation within a given country in particular between urban and other zones and very often between north, south and central / peripheric zones. Adequate regional policies should take such differences into consideration.

The basic point is that at times the cost of certain products, systems or services indicates a growing poverty by comparison with the situation when they were freely available. (One has to pay to clean polluted water when such water in a better protected environment might still be free). Furthermore,

regarding the economic importance of non-monetarised and non-monetised activities – in other words those where no monetary exchange is involved –, indicators need to be developed to identify the real level of wealth in terms of stocks of goods and services (and human relationships) whether they are paid for or not.

An additional indicator should show how far, in given situations or given environments, self-production is being enhanced and developed or eliminated. Indeed, some sort of indicator should establish the various levels of real wealth with regard to this resource.

As to general environmental problems, indicators and statistics have of course to be developed as much as possible concerning the long and even the very long term prospects (on issues like climate change, vulnerabilities of post-industrial structures and communications systems and so on). But what is just as essential is an indicator of the level of uncertainty of such indicators or hypotheses. An effort must be made to identify those uncertainties which are risk-manageable (where the frequency and the magnitude of the events are such that rational decision can be taken) and those issues which are not risk-manageable because the level of uncertainty makes any decision rationally impossible.

Special studies and indicators should be developed as to monitor the two-way transition of products and services between the non-monetarised or non-monetised market and the monetarised one. In each case it has to be determined to what extent each of such transitions increases or diminishes the general stock of wealth. This means that instead of confining economic analysis to monitoring our efficient use of the monetarised system, one has to determine the overall level and the limits of the efficiency of the monetarised systems and the point

at which it becomes sensible to stimulate or reorganise non-monetarised systems which are a necessary complement to the Service Economy.

Such problems cannot be looked upon as the exclusive concern of the advanced post-industrial countries. Rapidly industrialising countries across the world are using technologies and methods of wealth production which accelerate the introduction of services and their related constraints. On the other hand, a service-economy view of things should help to bring home the fact that in many so-called under-developed countries, the real level of wealth is very often higher than normally quantified. More attention should be given to the fact that by viewing economic development from the perspective of the monetarised system alone, wealth producing activities in non-monetarised systems are frequently dismissed and sometimes even destroyed. The point is that in the Service Economy, the monetised system, if it is to optimise production, needs the strong support of non-monetised and non-monetarised activities.

As many studies in Germany have revealed, the boundaries between work, learning and entertainment are increasingly blurred. Activities developed in any one of these three areas influence most often than not the way they are transplanted into other two. Lifelong education is increasingly important and especially for those in their 60's. The availability of a part-time job could be approached as change of activity, with adaptation and proper training, as one benefits previous experience in one sector and moves into another. Moreover, in some sectors at least, lifelong education should be at the very highest level. In some cases one could even envisage diplomas automatically losing their validity unless they were reconfirmed by fresh examinations or by evidence that skills had been kept up-to-date.

Points of controversy

20. The challenge of building more realistic and useful methods to measure the wealth of nations

It has to be remembered that measurement of national wealth, acceptable in the course of the Industrial Revolution is now increasingly inadequate. In fact: aggregate added values in the accounting of the GNP measure the flow, i.e. the monetary cost of human and material resources employed in the monetised sector. The basic assumption here that this aggregate added value is in itself a net value and, as such, adds integrally to economic and social wealth.

This is ceasing to be the case for several reasons:

All reconstruction costs, following a destruction of whatever origin (natural or man-made catastrophes) are considered an increase in national wealth. This would mean that the more destroyed goods are rebuilt, the richer one becomes. This is one absurd consequence of considering the simple flow of productive production activities as equivalent to increasing wealth.

On the contrary, the discrepancies perpetuated by classical economists between the notion of riches and wealth are increasing. Technologies and other improvements continue to depress prices, but it is clear that the global real wealth is increasing. This might, at the same time, diminish monetarised flows. This is particularly true of fields where technology is both extremely productive and innovative like, for instance, the telecom sector. Imagine that one day computers could be sold at $ 5 a piece: this would constitute an enormous increase in wealth for the individual and a total disaster both for the employment and for growth of GNP.

It is also clear that the advance of industrial society has promoted the monetisation of an increasing number of activities. Many of them have thus been registered as an increase in wealth, where in point of fact they have merely involved a transfer into the monetised sphere of production what was originally within the non-monetised and non-monetarised systems. This is why the survival on $ 1.000 per month in Switzerland or in the United States is very hazardous, whereas in a developing country, it means that one is rich. It is for this reason that the World Bank took the initiative of producing an annual statistical survey of the

wealth of nations in terms of purchasing power.

A second step was taken by the United Nations Development Programme (UNDP), which started publishing an annual human development report. It is interesting to note that this report, thanks to the pressure of reality, has found it necessary to include indices of certain non-monetised activities in its computation of national wealth.

Another important issue ripe for innovative thinking concerns the question of inflation and deflation. Because during the first 150 years of the Industrial Revolution, a down-turn of the economy was always represented by a quantifiable deflation, the idea persisted that zero inflation or, horror of horrors, real deflation (as has occurred in one or two countries in recent years), was to be avoided at all costs. It is clear that deflation may in certain circumstances act as a disincentive to economic stimulation and the production of wealth. But the issue should be carefully reexamined because ultimately buying goods and services at lower prices means an increase in people's wealth even for producers when they are buyers. Some economists think that accepting a low rate of inflation (as a stimulant) is a good thing like drinking two glasses of wine per day, provided we know where to stop and do not expect to polish off the bottle every day. In fact, the advantages of inflation are not so much inflation itself as the differentials in inflation. Once you have 2%, and provided the same rate applies to everybody, then there is an additional advantages in getting slightly more so that the process has a tendency to cause a chain reaction.

We do not want to take a final stand on this issue, but we feel the need to reconsider it carefully as a fundamental basis for a diversified welfare and social security system as well as for providing greater stability in the economy considered as a key basis to concentrate the efforts in facing the risks of life and entrepreneurship.

Finally, it is obvious that this issue is intimately interrelated with the consideration of providing wealth and welfare through the organisation and stimulation of self-productive and non-monetised activities.

5.3. Possibilities to develop a basic first layer part-time work for all the able population

With the concept of the multi-layer work system introduced, we would like to examine the possibilities to create the first layer of work, that is part of the new strategy. At the very heart of this matter lies the integration of the non-monetarised and the monetarised activities into an efficient framework. Economic optimisation methods, taken in a larger sense, should be capable of finding the better type of equilibrium between the two worlds, i.e. of the monetarised and the non-monetarised systems.

All resources currently used for unemployment and welfare benefits will form the financial basis of the new first-layer provision. There will no longer be any payments for remaining idle but help for staying active. It has to be accepted, that the activities of the first layer will in many cases not correspond to individual preferences, but we do not see any alternative here. There is still the possibility of looking for work on the second layer that makes the provision of a first-layer job for the individual superfluous. It is very important that an efficient adaptation of legislation and regulation offers adequate social protection and no economic or social penalisation of non-full-time jobs.

The current system of remuneration in the private and the public sector will have to be changed. There should be no longer a payment-by-seniority system, that leads to severe discrimination of outsiders in the labour market. The viable alternative would be a payment-by-efficiency system that lowers considerably the threshold for older workers to find a second-layer job and avoids their of substitution through lower paid younger ones.

It will be governmental policy to stimulate and incentivate the development of the first layer and where necessary direct state intervention will have to provide this first layer of work. The upgrading of such large sectors of our social life such as education and health are a privileged field to go further in this direction: The explosion of costs will probably be the main motivation to at least explore the possibilities of first-layer jobs in this sector. In many countries with conscription, a large part of the conscientious objectors are employed in health and other social services with very low remuneration that is in many cases not correlated to their activities. In some countries, the social service system has come to depend on these workers to such a degree that without them the whole system would be in severe distress. Organisational changes could rather easily create and integrate first-layer jobs here. As we stated at the beginning, we live in a world of human and material resources which are plentiful and it will be a scandal in the long-term if, because of societal and organisational shortcomings, we continue to look at the future as something dangerous and menacing.

Existing social and informal structures will probably in the future be more and more used and financially helped: They will particularly progress in those areas in which they present an alternative, cheaper solution, against those activities of public interest, which by their more formal organisation and institutionalisation are more expensive. Here lies the possibility to introduce first-layer work without incurring the immediate risk of harming the remaining monetised parts of the economy through crowding-out or other adverse effects.

It is again a fact of recognising the productive value of activities which contribute to the overall wealth, even when they do not fall or only partially fall in the statistics of the present national accounting system. All these activities that have no implicit or explicit exchange value and that do not interfere with

elemental market mechanism could be used to provide a first layer of work for those who need it.

There is also an inherit mechanism of procreation of new jobs which will to some extent alleviate some of the pressure on the basic layer of work since there will be increased possibilities for the second layer as a consequence of integrating more willing people into the active producing part of the economy. This acceleration mechanism, that is so well explained for economic growth, will have a very positive contribution towards the goal of achieving full-employment.

We have already stated that the modern society absolutely requires a minimum level of monetary instruments, but we also pointed out the limits to the efficiency of the monetised economy. As in the Service Economy sectoral transfers of productive activities occur no longer only within the monetarised system, in many cases they are "lost" to the non-monetarised world. We have to aim for re-integrating these "lost" activities and transform them into work, that is possibly carried out as part of the first layer of work as remuneration seems hardly possible. The integration of monetarised and non-monetarised activities to define the wealth of a society is therefore of utmost importance.

The distorted perception of our supposedly decreasing capacity to produce wealth has to be rectified. The integration of non-monetarised systems into the definition of wealth and wealth creation that will lead to them being considered in future policy, not only provide a more realistic perception of economic reality but also new conclusions pertaining the economy and a more optimistic outlook regarding the capacity to find new solutions to employment problems. This report cannot and shall not provide the ultimate answers to this very complex problem that requires taylor-made solutions for the

various cultural and ethic settings and specific economic situations and human preferences throughout the world. It will definitely not supply a new utopia, instead it aims to open the path for a new approach that, accepting uncertainty and the opportunities it entails, could be falsified, but hopefully gives the initial push for an avalanche of new ideas.

The future is by definition uncertain, but this uncertainty should create hope and the wish to exploit added opportunities, giving way to new, reasonable and productive solutions to the employment problem.

Points of controversy

21. Some additional key issues

- importance of establishing methods for evaluating and quantifying the level of wealth
- a first step in the right direction:
  - - World Bank statistics on real purchasing power of incomes
  - - UNDP Human Development Report
- the problems involved:
  - - only average/ mean data for entire countries with often great regional differences (cf. Italy north/ south)
  - - cost of products/ services versus free availability
  - - no inclusion of unpaid activities and the stock of goods and services
  - - no inclusion of environmental situation
  - - no consideration of the vulnerability of the system
- monitoring the general stock of wealth including the transition of activities between the monetised and other parts of the economy
- special position of developing countries
  - - tendency to underestimate their wealth due to an inferior development of the monetised economy and high levels of non-monetised and non-monetarised activities
- the Service Economy needs the support of non-monetised and non-monetarised activities

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