On human knowledge and the future of Europe

Reflections in light of some of Friedrich A. Hayek's intellectual contributions

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Ladies and Gentlemen,

It is a great honour for me to stand here as a recipient of the Hayek medal, instituted to keep alive the memory of one of the great polymaths of the 20th century, and to share with you my own modest reflections – not just those indicated in my earlier title, about the future of the European continent, but also those that link up with some of the intellectual contributions of this remarkable personality.

As an experimental psychologist by training, whose rather diverse interests then shifted to psycholinguistics, semiotics and poetics, among other fields, economics was the one discipline I was convinced that I would never even go near. I don't know whether it was growing up without any money or, on the contrary, having to count stacks and stacks of money belonging to other people when I was sent to work in a bank at the age of 16, but in my youth I had a veritable aversion to anything to do with commerce, finance or economics. Yet, when I was elected president of my native country 10 years ago this June 17, these topics rose immediately to the top of my agenda. I had no choice then but to go up a learning curve that was very steep indeed, and to acquire a genuine interest in processes that were of obvious import for the welfare of the population.

Today, after nearly ten years of remarkably rapid growth and development, my country is one of those to have been hardest hit by the world financial crisis and the dramatic slow-down in the world economy. Although there certainly had been warnings that the economy of Latvia was overheating, I think it fair to say that the developments since the spring of 2008 have taken not just us, but most of the world by surprise. Furthermore, there seems to be no clear consensus as to the best steps to take to mitigate what has become, for too many people, an unmitigated disaster. Different countries have taken different steps, at different times, to save what still could be saved. The one common thread of special interest to us has been the declared intent of European Union member countries to stand by those members that are in difficulty with gestures of solidarity and support. At a time when economic difficulties create an understandable push for retrenchment and the temptation of protectionist reactions, the

ability of the EU as a whole to show solidarity will give a serious signal about the ability of the Union to grow into a true global player, rather than a partial failure.

When major financial institutions started to crash, first in the United Sates and then soon in Europe as well, I for one could not believe that risks of such magnitude could have been systematically undertaken, packaged and promoted by experts who had earned the trust of individuals, businesses and governments through earlier performance of prudent management. What good had all their training and experience done them, one could only wonder. What had they learned from all those immensely sophisticated theories for which Nobel Memorial prizes in economics had been handed out since 1969? Where had all the wise men been if they had not seen it coming?

The answers, so far as I could see, where not to be sought in the abstruse details of quantitative predictions based on the complicated equations and mathematical models of economics, but rather in some brutally primitive aspects of human psychology, namely: greed, cupidity, avidity and the addictive thrill of risk taking, which clearly had become dominant over any effects of specialized education or of native ability for rational thinking. But the truly perverse thing in the situation was, that all these wolfish motivations too often had been hiding under the sheep's clothing of financial and economic expertise.

Among the many lessons to be drawn from this, is the reminder that the social and human sciences have still a long way to go before they could truly play the role that Francis Bacon had set for science some 400 years ago: to work for the advancement of knowledge and the betterment of mankind. I can fully sympathize with Friedrich von Hayek's earnest appeals for economists to be more respectful of the inherent complexity of the phenomena underlying abstract concepts such as "the market," and not pretend that they "had a handle on it" when in fact they did not. I was also interested to discover that Hayek, along with a few others of the so-called Austrian school of economics, were the lone voices who had issued warnings about the possibility of recurrence of an economic crisis of the magnitude of that of 1929. Indeed, Hayek had had early insights in a great many things, some of which happen to overlap with questions that have been of intellectual interest in my own professional life, and which I would like to share with you today.

If Friedrich August von Hayek had chosen to pursue his early interests in neuropsychology, he might have become like one of his great admirers, Herbert A. Simon, of Carnegie-Mellon University, who obtained a Nobel Memorial prize in economics, but will be best remembered by posterity as the father of cognitive psychology and co-parent of artificial intelligence. Hayek's 1952 work, *The Sensory Order*, argued for locating associative learning at the physiological level of network-like connections between neurons, this at a time when European psychology had still only the 19th century notions of associationism and sense data in its repertoire. This was a brilliant insight, which happened to have many parallels with the earlier work of D.O. Hebb of McGill University, published already in 1949, in his book *The Organization of Behaviour*. To all appearances, Hayek was unaware of Hebb's work, neither did he pursue his interest in this field. As for Hebb, he had a huge impact on the subsequent development of psychology, and his fame was the main reason that I went to McGill University for my doctoral studies. What Hebb called his neo-behaviourism offered new avenues for escaping the bind that psychology found itself in as a science. If it followed the path of introspective sense data or of verbal associationism, it risked being rejected as a true science and remaining as a handmaiden of philosophy. If, as with the work of the American behaviourists, it based its scienticity strictly on the model of stimulus-response reflex connections, it risked remaining confined to animal experimentation, with very few avenues for exploring human learning. Hebb gained his fame by invoking hard neurological data, such as the work of Ramon y Cajál in Spain and Moruzzi and Magoun in Italy, to frame his theory of cell assemblies – loops of reverberating circuits of cortical and subcortical neurons, which allowed for greater neural complexity than the earlier postulates of straight linear stimulus-response connections in the brain. Such cell assemblies could then be conceived to be the neurological basis for learned units of behaviour and psychology would have found a way to be accepted into the fold of the biological sciences. I remember, by the time I obtained my Ph.D. at McGill University, how happy Hebb was when his dearest wish came true and the psychology department proudly moved into the brand-new biological sciences building. There was a limit, however, beyond which neither Hayek nor Hebb could go at the time, which was the fact that neurology as a science was still in its infancy, for the simple reason that it lacked appropriate technical tools for the advanced study of brain functions. I think it was Sherrington who had said at the end of the previous century that the brain was still as good as a mass of porridge for all we knew about it, and trying to surmise its functions was like listening at a factory window and try to determine what was being built inside just from

the noise being made. Nevertheless, when the new breakthroughs did come, Hayek's early insights about neural networks turned out to have been extremely prescient.

Had Hayek, like Hebb, remained in the field of psychology, he never would have obtained the Nobel prize. What moved him in the direction of his greatest recognition was his interest, not just in monetarism, but also econometrics, as well as his acute awareness of its limitations. Economics had chosen the path of quantification and the recourse to mathematical simulations in its own disciplinary attempts to escape the label of being "the dismal science," or worse still, a 'soft' social science, if not altogether a pseudo-science. In order to become a 'real' science, and demonstrate its scienticity, it took up mathematical modelling with a vengeance, glossing over a great many methodological and conceptual problems that Hayek astutely points out in his 1974 Nobel lecture.

Herbert A. Simon, for his part, a Nobel Memorial Prize-winner in economics of 1978, used a multiple-pronged approach, developing mathematical models and computer simulations that could be applied in economics, in psychology, as well as in other fields. His most lasting contribution, however, was to participate in the creation of the field of artificial intelligence and to open the path to the development of a truly cognitive psychology. He did this by rescuing the long-abandoned and discredited 19th-century technique of introspection and verbalization of mental states, but he escaped the stigma of 'mentalism' by using verbal protocol analysis as the data for building mathematical models of mental processes.

At Carnegie-Mellon University in the nineteen seventies, Simon was in the unusual position of being attached to the Department of psychology, as well as having an office in the economics department and affiliations with philosophy and other disciplines. When I went to work with him for part of my first sabbatical, he kindly offered me one of his offices for the duration, saying that he was not using it all that much. I had wanted to show him some computer simulations of concept formation that my husband Prof. Imants Freibergs, a software engineer, and myself had developed. Simon was very impressed by the clever programming and by the flexibility of the mathematical models we had developed. The models, indeed, were truly terrific, and could churn out learning curves that matched beautifully the empirical data I had obtained from testing young children. There was only one problem. There was no way they could chose between alternative hypotheses that the subjects might have had in mind at the time of responding. We could run simulations of the learning

curves the subjects had produced by their choices. What we could not do, was use the mathematical models to chose between alternative cognitive hypotheses that the subjects might have been using as the basis for their overt behavioural choices. As Simon himself was the first to acknowledge, mathematical models were psychologically empty, and could not be otherwise.

Another set of serious problems with mathematical models as applied to the social and behavioural sciences concerns their parameters. To give one example, Simon had developed an interesting statistic, that he called alpha, that could be applied to a wide variety of phenomena, from demographic data and distributions of incomes to the distributions of frequencies in word association. I happily seized upon this handy tool to analyse some word association data that I had gathered, only to discover that the statistic was badly biased, that is - its numerical value changed systematically as a function of increasing sample size. Unless one was aware of this, and unless one took complicated steps to correct it, the comparison of results obtained by different experimenters using samples of different sizes would be completely unjustified and could lead to some seriously wrong and misleading conclusions.

An even more serious problem with quantification in the social sciences, as Hayek rightly pointed out in his Nobel lecture, is the choice of parameters to be built into a model and the legitimacy of the quantifying scales underlying them. When dealing with complex phenomena, be they the behaviour of markets or of human minds discovering concepts, the first hurdle is to discover the dimensions to be measured or, if you like, to determine which aspects of the phenomenon are of causal significance, as distinct from those that are merely incidental. Now it so happens that some dimensions are more easily identified than others, if for no other reason that instruments are available for quantifying them in some way. In economics, there are certain sets of data that might be readily available either from governments, stock markets, banks or large businesses, and these then become grist for the mill of economists building mathematical models. But, as Hayek points out – these readily available quantitative data may not be the really important ones for understanding, for example, the correlation between total employment and the size of the aggregate demand for goods and services. They may even represent dimensions of so little significance, that using them as a basis for mathematical models may lead us to grossly inaccurate and dangerously misleading interpretations.

From this, Hayek draws two serious conclusions for the social sciences and their strivings to be as scientific as possible. First, there are processes of such inherent complexity, such as the behaviour of markets, that it may be illusory to pretend that we are able to capture them through the parameters that we have been able to measure. Worse still, the requirement for premature quantification may force social scientists into constructing vacuous models of little predictive value, just so they are numerical and give the outer appearance of scienticity. Generations of scholars may then waste their time measuring factors that are of little relevance or predictive power, while crucially relevant factors remain neglected for the simple reason that they are difficult to quantify.

I had occasion to come to very similar conclusions after spending several years of my life doing an exhaustive survey of the development of the sub-discipline of psycholinguistics in the mid-nineteen-nineties. This field had experienced exponential growth of publications and research during my active career, but the same could not be said of the quantity of solid, reliable phenomena that had been discovered, or of the power of the scientific models and mini-theories that had been developed. One of the major weaknesses in the field was the paucity of tools and methods for obtaining quantifiable experimental data. As a result, a great deal of ingeniosity was deployed in finding new experimental designs, but the measure of response used was and remained overwhelmingly the same, which was reaction time. It was now measured electronically to one thousandth of a second, rather than manually with a stop-watch as in the nineteenth century, but as the major response measure subject to easy quantification, it remained as a bottle-neck to more diversified gathering of information.

Hayek rightly objects to the practice of happily proceeding on the fiction that the factors which investigators can measure actually are the ones that are important and relevant. He warns us against the danger of pretending to have clear and precise knowledge just because we are able to wave some figures around, and of refusing to recognize the limits beyond which science – at least the science of our time – is simply unable to go. He warns against superficially scientific-looking methods that are applied like cooking recipes to phenomena of inherent complexity that they are simply unable to handle.

I would add to this, from my own personal experience, that even in the physical sciences there is sometimes an excessive faith in the power of mathematical models and a lack of appreciation for their inherent limitations. Thus I have seen computer simulations offered as

arguments in favour of a particular form of disposal for nuclear waste, when the mathematical model used contained over 100 different parameters, with absolutely no provision for the multiple interactions they might have among themselves. Worse still in such a situation, there is absolutely no way of ascertaining which of these many interactions may be of empirical or causal significance, and which are merely a form of statistical noise. If that were not enough, it turned out, on closer examination, that many of the numerical values of the parameters entered into the model were not even based on empirically obtained data, but were actually probabilistic estimates more or less pulled out of a hat. For all its appearance of scienticity, such a model offered predictions for what might happen 10000 or 100000 years in the future that were not much better than the auguries based on consulting the innards of sacrificial victims or observing the flight of birds.

I have gone on at some length offering my own associations to Hayek's cross-disciplinary interests, as well as his insights into the limitations of quantitative methods, because they seem to me of crucial relevance to-day. We live in a post-industrial world where we take it for granted that science and technology have been of enormous service to mankind and that we have at our beck and call an accumulation of knowledge that just keeps growing in an ever accelerating way. From this, I fear that we have made the unwarranted inferential leap to thinking that the wealth of this world must also keep growing in an exponential manner, with too little regard to the finite nature of the resources of our planet, as well as the limitations of human capabilities for rationally exploiting them. Economies cannot be in equilibrium, we are told, but must always keep growing; profits can never be constant, but must get bigger from quarter to quarter of every year; companies can never be content with doing well what they have been doing, but must improve their year-end balance sheets by never-ceasing acquisitions, no matter what social and human disruption such take-overs may occasion. These hysterical demands for ever-increasing growth and profits are in no small measure responsible for having brought us to the global crisis of capitalism we are facing today.

We have seen the domino effect of financial institutions collapsing and entire economies faltering one after another, of entire economic sectors, such as the car industry, slowing down to a virtual stand-still. We probably never shall have a full computation of the sum total of human misery this crisis has already occasioned. This misery is clearly less in countries that were quite prosperous until then, but much more profound in those countries that were not so fortunate, in every sense of that word. What we do have are the figures of the mind-boggling

losses incurred by highly respected financial institutions that were the initial cause of the world-wide crisis. We do have a deciphering of at least some of the hare-brained schemes by which experts trusted because of their supposed expertise engaged into more and more risk-taking and dizzying brinkmanship, if not downright larceny and fraud. Bernard L. Madoff's Ponzi scheme, said to have cost his clients as much as $65 billion in losses, readily springs to mind as an example. We also have evidence of outright corruption and collusion in the calculation of the financial risk ratings presented by supposedly objective and rational rating agencies, as well as the misleading manipulation of economic models of every kind.

If Hayek could say, at the beginning of his 1974 Nobel address, that economists have little source for pride and that "as a profession, we have made a mess of things", what, I do wonder, would he be saying now, even considering that financiers have been the active culprits, while economists have only failed to give us proper warning? If Hayek were alive today, I think he could only repeat that the experts had made an incredible hash of things, that this mess was bigger than any previous one and that, sadly, they hadn't learned enough from the experience of earlier crises to prevent the present one from billowing to its current proportions.

In fields as complex and abstruse as finance and economics, both individuals and institutions (and even governments) have had no choice but to trust in the special knowledge of experts for offering them guidance. The experts having failed them, not only are ordinary citizens left with no recourse for compensating their losses, they will be saddled with paying for the greed and mistakes of others for the rest of their lives. Under such circumstances, the danger of social unrest becomes an increasing danger and an increasing probability, unless signs of economic recovery appear on the horizon.

Certainly in countries like Latvia, one can hardly blame many people for thinking that the capitalist system and the market economy have failed them, 20 years after the country had to go through the trauma of the collapse of a planned, centralized economy which followed upon the collapse of communism. The inhabitants of Latvia, like those of so many other post-communist countries, put up with huge disruptions in their daily lives and a dramatic reduction in their standard of living in the early 1990s, accepting this as the price to pay for recovering their independence from foreign occupation and their liberation from a totalitarian system. They were ready to go through an accelerated process of privatisation, embrace the

idea of open markets and of free competition, for these principles had shown an obvious success in raising the standard of living in the countries which followed democracy as well as a market economy. It comes as a deep shock to them that 20 years of faithfully following the recipes of liberal economics has not only failed to bring them up to the level of Western countries, but is now threatening to make absolute paupers not just of old age pensioners, but also teachers, professors, doctors, policemen and other government employees, as well as condemning to unemployment a growing number of people in the private sector.

Now that a deep recession has struck, it is interesting to see the explanations that are offered for its causality. Only a year ago, back in the spring of 2008, I had occasion to hear the Secretary of the Treasury of the United States of America explain how over-greedy would-be home-owners had no one but themselves to blame for the collapse of the sub-prime mortgage system and the catastrophic drop in the price of real-estate. But in the USA, it was not individual householders, but Mr Greenspan who had set in motion the monetary policies that led to the melt-down in sub-prime mortgages. And these policies of low interest rates, in turn, were the direct consequence of President Clinton's *political* decision to give as many Americans as possible the opportunity to own their own homes. Along the same lines, we are being told by the IMF and other potential lenders that excessive private borrowing as well as lack of political will for structural reforms are at the root of Latvia's current financial difficulties. While not denying the important part of the blame to be shouldered by individuals as well as governments, I would point out that Scandinavian as well as German banks were making impressive profits by taking over the Baltic markets previously closed to them behind the Iron Curtain. They were aggressively encouraging people to take out loans, which brought the banks handsome revenues, so long as the local economies kept growing, which they had been doing at a fast and furious pace. In a free-market, liberal economy, there was little the Latvian government could do to control borrowing by citizens who had access to low-interest loans in euros, rather than the national currency. While successive governments were certainly gravely remiss in not taking those measures that were accessible to them (such as reducing government spending), I think it unfair to put too large a burden of blame on ordinary citizens, who simply did not have sufficient knowledge or understanding of economic principles to make the sophisticated decisions needed to keep them safe even in unprecedented economic catastrophes. Could the ordinary citizen be blamed for a lack of foresight and prudence where even the most sophisticated of experts had miserably failed?

If anything good is to come out of the current crisis, it might be to bring European citizens out of their growing sense of apathy and listlessness about their futures. Considering the objective advantages that any European enjoys in comparison to inhabitants of large parts of the rest of the world, it is nothing short of amazing to see how unappreciative Europeans can be of the peace most of them have enjoyed for the last six decades, how blasé about the high standard of living that they take for granted, how weary of the quite striking and remarkable achievements of individual countries or of the European Union as a whole. How quickly have people forgotten that it was only 20 years ago that half the continent regained the freedom it had lost at the end of the Second World War. Could it be that recent generations of Europeans are feeling unhappy (and this, well before the economic crisis) precisely because they have been spared the experience of major cataclysms within their own lifetimes? Could it be that what is missing in their lives is a greater sense of purpose and a belief that they, individually, are needed and can make a difference?

When looking upon the European continent, from the double perspectives of time and distance, for lessons that its past might offer for its future, I find that it is not all that different from other continents in all its buzzing, blooming variety and confusion. Europe has been a hot-house of unbounded progress and inexhaustible potential as well as a graveyard of trampled ideals and broken promises; it has been home to the highest hopes of mankind that have ever been formulated, but also to the deepest despair, nihilism and destructiveness; it has been a source of the most noble and liberating insights of enlightened reason, as well as of the most depraved nightmares of insane malevolence.

In all this welter of glaring contradictions, this patchwork quilt of false starts, brilliant successes and abject failures, we get a humbling reminder of the frailty of human decision-making, the limitations of human rationality, and the fragility of all of Europe's greatest accomplishments. Everything good that we have achieved has been done so at great pain and effort, against alternatives that ranged from the merely bad to the absolutely frightful. One thing we can be sure of is that we can never slacken our efforts to preserve it, unless we wish to see it slip all too quickly from our hands.

Regardless of the epoch we live in and the continent or country that we inhabit, our societies face the eternally divergent paths that lead either to progress or to stagnation and retrogression. As individuals, we are free either to follow the upward thrust of our sub-

angelic natures and cultivate our higher humanity, or to give in to the downward pull of the demons of our potential bestiality. Indeed, we also have the middle road of moderation and common ordinariness, of plain common-sense and cool rationality. Following the golden mean may be despised by exalted romantics and fanatic ideologists alike, but at least it can spare us from inhumanity and senseless bloodshed.

But, in addition to possibly losing sight of our highest ideals, I also see the potential danger of a mismatch between the lofty philosophical aims that laid the foundation of what has now become the European Union, and the instruments of collective governance that have been developed to implement them. The EU has become so caught up in the mechanics and difficulties of unanimous decision-making, that any new mission it decides to set itself runs the risk of being sabotaged by inflexible rules and regulations put in place earlier for a completely different purpose. Because of the ponderous mechanisms of multiple consultations, once any regulation has been unanimously adopted, it tends to be considered as cast in stone for ever. If bureaucrats, either timorous by nature, or intimidated by a culture of distrust, were to be asked: What is more important, ensuring the success of the new mission that has been undertaken or the old regulations that are already in place, they are likely to respond that the rules must reign supreme, and that creating new ones would be of superhuman difficulty. Any new mission must somehow be squeezed between the cracks of existing regulations and if this endangers the mission, then that is just too bad. These kinds of Byzantine structures and this kind of prevailing culture of pusillanimity and distrust are a ball and chain around the feet of the European Union. The Europe of the future cannot reach its full potential, unless it attacks itself right now to loosening these chains.

The essence of freedom is the possibility of making choices, be they conscious or not and irrespective of our beliefs either in free will or in predestination. This Europe that is your inheritance and mine is the cumulative result of all the choices made by those that went before. The Europe of to-morrow will be shaped by the choices that we make to-day, but I would not presume to claim that our choices will be more enlightened, informed and rational than those of our predecessors. The best that we can hope to do is to avoid the most grievous of their errors. If we can manage that, it will at least be something.

So, to answer the question given as the earlier title of my address: “What kind of Europe, for what kind of Europeans?” I think that the answer could be very short and simple. Surely it

should be a Europe of freedom and equal opportunity for all of its nations, as well as freedom and equal opportunity for all the individuals living in it. It should be freedom in its double aspect of positive and negative freedom, in the sense that Immanuel Kant and more recently Sir Isaiah Berlin have distinguished them.

The American Declaration of Independence has stated, simply and beautifully, that everybody is entitled to life, liberty and the pursuit of happiness and what this means is further spelled out in the articles of the American Constitution. The European Union still lacks its own constitution, but there is no doubt that it adheres in principle to much of the same values. After all, the existing treaties make it quite clear what a citizen of the European Union should be entitled to: the right to life and health and its preservation under adequate health-care; the freedoms of movement, opinion and assembly; equality before the law and access to a fair, uncorrupted justice system; the right to uncensored information and to the education that makes possible the receiving, processing and understanding of such information; the right to chose and elect representatives to whom various aspects of collective governance are delegated, and the right to be consulted in matters of public concern that introduce significant changes in the social contract under which one lives in any given society. To put it in the simplest possible terms: we should like to see a Europe where social justice prevails and every person is accorded an equal dignity. After all, all the revolutions and uprisings in the history of Europe, from Spartacus' slave revolt to the French and October 1917 revolutions, through the revolutions of 1848 and any number of uprisings in-between, have been in some way or another precipitated by situations of glaring abuses of the rights of individuals as well as glaring inequities in the allocation of material resources.

In a Europe proud to the point of arrogance about the fairness and the justice of its post-World War II models of social economy, a major challenge for the future, beyond the necessary tinkering with institutional structures, will be to put its own house in order and to do away with the injustices and the inequalities that still prevail within as well as between different European countries. There has been plenty of political and social concern about the strata of society within even the richest EU members, whose members remain marginalized despite long-standing efforts to integrate them fully into the mainstream of society. The catch-up process between the post-communist member states and those with longer experiences of liberal democracies and open markets has been much faster and so far remarkably successful. It now remains to maintain this positive momentum and not to lose it

because of the economic recession. If the European Union is to claim the free movement of people, goods, capital and services as the four pillars of its freedoms, then it should not make a mockery of them by putting up protectionist measures when it comes to their application in practice, especially in what concerns the free movement of services. If the EU is serious about free competition and a level playing field for all, then it should renounce the hypocrisy and inequities of its common agricultural policy. It is just plain ludicrous to talk about free competition, when farmers of the older member states get agricultural subsidies four and five times larger than those of the newer ones, and this for a full ten years after their accession to the Union.

If Europe wishes to assume its favourite role of shining example and moral arbiter, then it should start by polishing its own escutcheon and respect equality as highly as liberty as its guiding principles. By this I do not mean an absolute equality in fact, nor one that measures everyone in a bed of Procrustus, but an equality of fair competition and equal opportunity on a level playing field. For only when the last cleavages left by the Second World War have been finally eliminated on its own soil, will the EU carry the weight in world affairs that is its proper due, given the size of its population and the weight of its economy. Then will it become indeed not just a haven for its own inhabitants, but a true beacon to the rest of the world as well.