

1st. Centenary of Institute for Catalan Studies. Closing Session

The contribution of the social sciences to knowledge*

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I have to admit I felt rather flattered when President Giner asked me to talk about such a passionate subject as the contribution of the social sciences to knowledge, at the closing session of the Centenary of the Institute of Catalan Studies. This institution is a leader in the intellectual panorama of a country that has known how to overcome situations of enormous adversity throughout its existence, and this has become reliable proof of the strong will of the people to maintain the essence of their own existence. Everyone has a certain vanity, albeit concealed to a greater or lesser extent, which an invitation of this kind tends to excite. However, once my feet were back on the ground I realised how entirely unsuitable a person I was to take on such a task. My specialist area is a very specific, precise field of economics, dealing with subjects related to the production unit, and moreover, from an applied point of view – therefore making it little disposed to a global vision of social problems and the wide range of disciplines dedicated to their study. Conscious of my limitations, I mentioned this to the president and suggested the names of some of the other members of my section, who I considered to be more appropriate to talk on the matter in question. For reasons which, in principle, I can only put down either to what is ironically known as the *privilege of age*, or to the memory of the years – alas now so long ago! – that we shared, although not simultaneously, the classrooms of the Lycée Français in Barcelona, the president rejected all my arguments and stood by his decision. Being disciplined by nature, I understood that this was an order that could not be disobeyed. So, I threaded the needle right away – as you can see, the textile expressions from my descendance have stuck – and the subject became my essential task. I will now show you the results of my efforts. I am forced to recognise that I have not succeeded in erasing the original sin, since I have not managed to eliminate the bias imposed by professional deformation. I am aware that my words give excessive weight to economics, placing it, as a discipline, in the centre of the social sciences – a position that might very well be questioned by others, among them the president of this Institute. I apologise for this, but hope that you will understand the difficulty of overcoming the inertia that has resulted from so many years of specialisation.

For many experts, the Italian Gianbattista Vico (1664-1744) was the first person to establish an epistemological separation

between the human and natural sciences. Curiously, however, he stated that since nature was a divine creation, only God could fully understand the laws governing its underlying laws and the way it works, and these would always remain hidden from human perception. Society, on the other hand, being a human creation, could be subjected to a complete and profound analysis by humans and leave no mysteries unrevealed. In short, he was of the view that human sciences, and especially social sciences, deal with a more ambitious panorama than natural or experimental sciences.

It seems that time has not been on the side of the Neapolitan philosopher. The progress made in natural science over the almost three centuries that have passed since the *Scienza nuova*, his leading work, has been enormous and has enabled spectacular technological advances in all its branches. As Dr. Messagué explains, in the field of cellular biology a revolution has literally taken place in the treatment of human illnesses thanks to the possibility of reading genetic codes. The conquest of space continues to progress, thanks to the contributions of physics and electronics, which have opened up some unexpected perspectives in their applications to information processing and transmission. Thanks to chemistry, new materials are constantly appearing, offering more efficient properties than traditional ones.

Human sciences, and I am thinking particularly about social sciences, do not present anything like as brilliant a panorama, despite what Gianbattista Vico claimed. Or rather, their effects are not as obvious and are much less tangible for the progress of humanity. What have the specific consequences of economic or sociological progress been, to mention two social sciences, over those three hundred years between us and the appearance of the *Scienza nuova*? The most frequent answer, or rather the one that I in my professional deformation believe that it could be, would point to Keynesian theory which has enabled us to fight the crisis of economic activity more efficiently than before it came to light in the 1930s. Contrary to classical opinion, by highlighting the difficulty of ensuring full employment using natural economic forces, or the slowness of achieving this, the Keynesian model opened the doors to the use of state intervention when the private sector lacks the necessary drive. At this very moment we are seeing how, according to the recommendations of the Keynesian doctrine, central banks in countries threatened by the North American mortgage market crash are pouring liquidity into the financial institutions in order to avoid the graver problems of a recession. I am sure that spe-

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cialists in other branches of the social sciences could offer similar examples. But there is no doubt that they would be hard pressed to match the spectacular nature that someone working in experimental sciences could refer us to. Another undeniable fact is that the number of ills such as hunger, war, epidemics and terrorism, that continue to affect a great part of humanity so cruelly, is very great indeed.

Social sciences then, suffer from an inferiority complex, despite the prophecies of Gianbattista Vico. There is a reason why in English-speaking countries they are known as *soft sciences*. It is very often difficult to pronounce general laws, that is, laws that are valid in all time and space, such as the laws of physics, and it is impossible to carry out experiments where most of the variables can be controlled – the very factor that allows causes and effects of phenomena to be detected. There is also a lack of data which impedes the quantitative analysis of the functioning of social groups under study – leading to imprecise research conclusions, a lack of rigour and weaknesses in the verification of results. One specialist goes further to say, [1] “Also, their research methods are often called in to question because of a lack of rigour and the critics are quick to point out that the people who take the important decisions pay little attention to what the social scientists say”.

This general lack of satisfaction with the current state of the social sciences does, however, have an optimistic counterpoint. There are indications that some of the reasons for this discontent have begun to be addressed seriously, which leads me to make me think that they will be resolved in the not too distant future. It is appropriate, then, to examine the basis of this optimism to ensure that it is not a simple case of wishful thinking.

First of all, one has to recognise that there has traditionally been a distancing, a mutual ignorance, among the different social sciences which has threatened them individually. In other words, there has been very little enriching osmosis among them. Let us take the three most important branches: economics, sociology and law, including the area of political science in the latter. Liah Greenfeld, a well-known Israeli sociologist, critical of the drift of economic science, has written an interesting essay [2] in which she reminds us of the tension suffered in Europe, especially in Germany, during the 19th and part of the 20th century, between those who, enlightened by physics and the protective *laissez-faire* doctrine inherited from Adam Smith, constructed theoretical mathematical models in search of universal laws, and those who, conversely, ensured that historical, local and social parameters would not provide obstacles to any attempt to explain economic phenomena. So much so that, according to the author, this bifurcation became so evident that it ended up in semantics, placing the *Staatwirtschaft*, which takes the historical, cultural and social variability of economic laws into account, against the *Nationalökonomie*, obsessed by the formulation of universal laws that underlie all specific manifestations of phenomena. Finally, in the 20th century, the discrepancies were reduced with the triumph of the impersonal and historic version of economics in the United States of America – a victory which spread to Europe, relegating a more sociological, and one could say political, view of economic behaviour to a clearly secondary

position. In other words, an abstract economic theory, relying heavily on mathematics, began to drift towards the natural sciences, divorcing it considerably from the two branches with which it had been closely related. The paths diverged when, in fact, the subject of the study was a common area.

Now there has been a change of tack, although it is still in a rudimentary phase. Firstly because finally, after a longer period than expected, the new mathematics unveiled in the pioneering work of John von Neumann and Oskar Morgenstern, *Theory of Games and Economic Behavior*, has begun to produce results, enabling the models of economic theory to succeed in precision and realism without losing any of their formal elegance. Let me explain further. The first economists, fascinated as they were by the rigour and prestige of physics, were inclined to use a type of mathematics – differential calculus – that had been thought up for the needs of science. Therefore they were using tools that could only be applied to economics by obliging a deformation of the economic situation. They required continuous functions that were capable of being differentiated, for example, when many economic magnitudes do not satisfy these conditions. Realism was sacrificed, but both elegance and, above all, a comparison with natural sciences were gained. The work of Von Neumann and Morgenstern, awaited with bated breath, would provide the turning point. It represented a new type of mathematics, adapted to the needs of the economy. After a much longer wait than anyone could have forecast, today the effects are obvious. In scientific journals on economic theory it is difficult to find an article in which the Nash equilibrium is not mentioned somewhere – named after the mathematician who was a specialist in game theory, and whose life inspired the film *A beautiful mind*. Slowly, the theoretical models have gained realism and new mathematics have enabled them to incorporate what we can call sociological variables. For example, trust and prestige are conditions to be taken into consideration in economic analysis to the extent that they have a decisive influence on transactions and the magnitude of their costs, and therefore on the smooth functioning of the market. At the same time, this mathematical turning point has revived the institutionalist trend of Veblen and Commons, which had been left in a corner because of the difficulty of representing their fundamental concepts mathematically; today, so-called *neoinstitutionalism* merits a great deal of consideration by economic theorists. So much so that some of its followers have been awarded the Nobel Prize, as is the case of Douglas North. Faithful to its roots, neoinstitutionalism aims to understand the role of institutions in economic life. Now, since institutions are social creations, often established legally, which evolve according to the demands and values of society, the line between law and economics is becoming blurred, especially in countries in which common law prevails, and more slowly in those like ours, which follow the more formal traditions of Roman law. But one has only to leaf through some of the numerous journals on the subject, such as the prestigious *Journal of Law and Economics*, to see that, on the one hand, lawyers study the economic effects of legal rulings, and on the other, in their research the economists take into account the legal framework in which economic activity is carried out. Many uni-

versities, among them some of the most prestigious, include the subject *Law and economics*, or one with a similar name, in their syllabuses. This is clear evidence, then, of the momentum that this trend – a hybrid of economics, law and sociology, and even history – has gained. The effect that this can have on the wellbeing of humanity is considerable: laws that are better adjusted to the characteristics of the problems they aim to resolve, after carrying out in-depth studies of them; judicial sentences that give greater consideration to real rather than formal situations; and continued monitoring of the needs of society (and not just economic needs), would be a huge step forward. Reciprocal ignorance of law and economics has caused a great deal of harm, and the diversion of resources that this causes must be avoided as a matter of urgency.

Another sign of change has been the interest recently awakened by the economics of organisations. It should be explained that confidence in the market as a highly effective mechanism for coordinating the activities of independent agents through pricing, filled as it is with an individualism that is consubstantial with liberalism, meant that economists undervalued the organisations and human groups in which rules and regulations, and not prices, are the tools to be used if everyone is to achieve harmonious operations. In other words, it presented the paradox of a sector with so much presence and weight in the process of resource allocation and price formation, being ignored by those whose activity it was to study this, as if all the agents intervening in the markets were one-man operations or, to put it another way, independent workers. In legal terms, this would be a situation where labour contracts did not exist. On the other hand, sociology very soon realised the importance of collective life in organisations and the rules under which they operate. As Kilcullen [3] comments, at the end of the 19th century Max Weber was already interested in the observed proliferation of bureaucratic formulae for the management of public and private organisations, something he put down to the greater efficiency of alternative formulae. An organisation managed by a bureaucracy, he thought, would function better than its competitors and would assert itself in the fight for survival. Note that this Darwinian-style viewpoint is precisely the opposite of that which, according to Smithian tradition was held by economists in Weber's time, and one that seems to carry great prestige today, consisting of the affirmation that the market is always more efficient than bureaucracy. However, Max Weber's optimism did not gel entirely among followers of the sociology of organisations that he had started. They soon began to discover the limitations, mistakes and potential perversions of certain situations, and they realised that bureaucracy is not the perfectly lubricated, frictionless machine that Weber had imagined. Case studies clearly showed violations of the rules and regulations, unimplemented decisions and pressure activities or lobbying that suggest a squandering of resources. As Gibbons [4] points out, although Merton was possibly the first to promote the sociology of organisations in the post-Weberian era with his essay *Bureaucratic Structure and Personality*, [5] Frenchman Michel Crozier [6] was the best known, at least among the Europeans, of a line of sociologists who were dedicated to the study of organisations and who, moreover, influenced the ad-

ministrative practices of companies. The fact is that while the sociologists were already taking an interest in the functioning of groups where the visible hand – to use Chandler's [7] terminology – of rules and regulations is the mechanism for coordination, the economists continued to be interested only in the impersonal forces of the market. Recently, however, there are many among my colleagues who want to see this corrected. In their opinion, organisations should be the subject of analysis using the instruments (the toolkit) that is atypically associated with microeconomics, at the same time as including sociological variables in the models with which to study market function. Maybe one of the most vocal in these opinions is professor of the famous MIT Sloan School of Management, Robert Gibbons, [8] who assures us that the time has come when it is the economists who need to include concepts and variables of sociological analysis in their market and organisational models because, as well as gaining realism, they would also be more useful for company practice. And he professes with examples, as can be seen in his articles.

As well as to overcoming the methodological differences between the different branches of the social sciences, two other tendencies are necessary for an impulse to progress. On the one hand, improvement in the quality and quantity of the statistical data of all kinds available to researchers – something that has to allow not only greater understanding of the situations studied, but also greater precision in the conclusions of those studies. On the other hand, although I know it sounds rather clichéd, new information and communication technologies, or ICT, have to enable the accumulation, processing and dissemination of large amounts of data, while linking dispersed data bases in many different countries and allowing comparative studies on a large scale. There are those, like Jean-Eric Aubert, [9] who think that the transformation of the social sciences, thanks to these new technologies, may be more important than the changes in experimental sciences. Moreover, he assures that the effects will be similar to those that have occurred in climatology. Not so long ago, weather forecasting was based on data obtained unsystematically and intermittently from dispersed weather stations. Today, thanks to the use of satellites, we have a much greater understanding of climatic phenomena and forecasts are much more accurate. This prophecy could be over-optimistic but it still has a sound basis.

If experimental sciences are experiencing a drive so powerful that it will allow the creation of a future free from many of the curses that the world has been dragging around after it, where technology has to enable an extension to the limits of human possibility beyond the imagination of Jules Verne, then why should we spend our energy trying to accelerate the progress of the social sciences? The answer can be found in the new scenario that can be summed up in the expression *knowledge society*, which, driven by new information and communication technologies, is the sign of things to come. In the field of economics, this scenario means that it is no longer physical capital, such as machinery, that determines the production potential of an economy, as was the case from the time of the first industrial revolution, but an intangible factor such as knowledge. The capacity for improving human capital and therefore creating new

knowledge and new ideas, and incorporating them in new goods and services, determines the wealth of a society. Driven by very powerful technologies, humanity is entering a new and promising age, but there is still a long way to go before the effects of technological advances can eliminate the problems that humanity is still dragging around now in the 21st century. Let us look back – it is always good to learn from history. The inventions included in the first industrial revolution required institutional modifications in order to be taken full advantage of – modification that would take years to be implemented. The best known example is that of the public limited company, essentially a legal entity established for exploiting economies of scale produced by the new technologies, which only received general acceptance well into the second half of the 19th century in the most advanced countries, starting with the United Kingdom, after overcoming a great deal of resistance; or the appearance of the trade unions as a mechanism to protect labour over capital interests – especially those of large companies where ownership and management were separate.

Knowledge is a very special production factor because of the difficulties it faces in being transmitted and valued, as experts in accountancy well know, dedicated in body and soul as they are to finding new rules to replace those that were in place when physical capital, machines and buildings were the main assets of the production units. The jurists seek formulas for avoiding the expropriation of the value created by knowledge; in other words, the protection of intellectual property. And sooner or later, it will be necessary to constitute new legal entities for companies in which the knowledge of their employees represents an important proportion of the cost of the goods and services they produce. The traditional limited company, on the other hand, is appropriate when the principal cost component is the value contributed by tangible assets.

But the institutional changes required by the knowledge society are not limited to the area of economics. All the experts say that taking advantage of the potential of new technology demands an accumulation of what is known as *social capital*; in other words, a set of personal relations that enable the sharing of risks, information and benefits. The denser the network that is produced, the easier it is to invest in new goods and more innovative services. Charles Leadbetter expresses this with clarity: “Networks of social relations create social capital, which is absolutely critical for the new economy. An ethos of trust and cooperation is just as important for the new economy as individualism or self interest” [10] (p. 11). If we want to create, we have to cooperate, and it is the social scientists who are responsible for discovering the most efficient paths for accumulating this intangible asset that is so meaningful for a true knowledge society.

The experts also indicate that one of the risks of this new paradigm of production is an increase in inequality both in the national and international arena. If this risk materialises, many of the beneficial effects that one expects from spectacular advances in science and technology will be cancelled out by confrontations between the rich and the poor, the wise and the ig-

norant, the lucky ones and the destitute. Social capital cannot be limited to layers of privilege in the population if we want not only not to perpetuate injustice but also not to endanger the sustainability of progress.

The social sciences and their followers therefore have a very important role to play in the near future. Jurists, economists, sociologists and anthropologists, among other specialists, have to study the real situation, detect new tendencies and overcome the methodological differences that have separated them, propose institutional reforms that will allow them to adapt quickly to the new conditions that the success of that the experimental sciences, and the technologies derived from them, have achieved in recent times. Resistance to change is considerable, but changes are vital. An imbalance between natural and social sciences would bring with it a backlog of serious consequences for humankind.

It is fair to say that in our own home territory, in Catalonia, research in social science has enjoyed very good health in recent times, as can be seen in the Research reports published by this Institute. However, we must not weaken, and we must continue follow the path laid down by its founders a hundred years ago. The problems in this country are many and varied – immigration, financial deficit, drives for innovation. We are convinced that the descendants of the illustrious names that figure in the history of our institution will continue to demonstrate the same mettle in finding the solutions.

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