Dimensión Empresarial

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INTELLIGENCE: HUMAN, ECONOMIC AND ARTIFICIAL AGAINST THE EFFECTS OF COVID-19

INTELIGENCIA: HUMANA, ECONÓMICA Y ARTIFICIAL CONTRA LOS EFECTOS DEL COVID-19

INTELIGÊNCIA: HUMANA, ECONÔMICA E ARTIFICIAL CONTRA OS EFEITOS DO COVID-19

Essay developed at Universitat Oberta de Catalonia, www.uoc.edu, Catalunya, and ESERP Business School a Law, www.eserp.com, Barcelona. Reception date 15/05/2020, acceptance date 20/06/2020.

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How to cite this article

Torrent-Sellens, Joan & Miró, Albert-Pol (2020). Intelligence: human, economic and artificial against the effects of COVID-19. *Dimensión Empresarial,* 18(3). DOI: 10.15665/v18i3.2497

Abstract

The current health crisis has led to an international economic crisis that has caused great social uncertainty that puts national governments in check. The Covid-19 places an enormous burden on health systems that poses a social and political challenge leading to a call for collective action by economic actors. However, in an industry 4.0 context, it allows for improved conditions of detection, economic recovery, flexibility, among others. In this sense, artificial intelligence allows the redefinition of its theoretical foundations, improving the efficiency of the health system. Keywords: Covid-19, Spain, Artificial Intelligence, public policies.

Resumen

La actual crisis sanitaria ha dado lugar a una crisis económica internacional que ha causado una gran incertidumbre social que pone en jaque a los gobiernos nacionales. El Covid-19 impone una enorme carga a los sistemas de salud que plantea un desafío social y político que lleva a un llamamiento a la acción colectiva de los agentes económicos. Sin embargo, en un contexto de industria 4.0, permite mejorar las condiciones de detección, la recuperación económica, la flexibilidad, entre otras. En este sentido, la inteligencia artificial permite redefinir sus fundamentos teóricos, mejorando la eficiencia del sistema de salud. Palabras clave: Covid-19, España, Inteligencia Artificial, políticas públicas.

Resumo

A atual crise de saúde levou a uma crise econômica internacional que causou uma grande incerteza social que coloca os governos nacionais em xeque. O Covid-19 coloca um enorme fardo sobre os sistemas de saúde que representa um desafio social e político que leva a um apelo à ação coletiva por parte dos atores econômicos. No entanto, num contexto de indústria 4.0, permite melhores condições de detecção, recuperação económica, flexibilidade, entre outras. Neste sentido, a inteligência artificial permite a redefinição de seus fundamentos teóricos, melhorando a eficiência do sistema de saúde. Palavras-chave: Covid-19, Espanha, Inteligência Artificial, políticas públicas.

INTRODUCTION

Three major influenza pandemics have occurred throughout the 20th century. Between 1918 and 1919 the first of these, known as the Spanish flu, occurred, with a high impact on human health, causing the death of between 25 and 50 million people (Qi, et al., 2012). However, the two other major pandemics in 1957-1958 and 1968-1969 killed between 2 and 6 million people (Rubio et al., 2006).

In this XXI century, we have experienced a new pandemic, which although it is true, will cause significant effects on the global economy, we do not know what will be the real impact of the disease about its effects on the economy (Clavellina-Miller, 2020; Rogoff, 2020).

In the few months since the appearance of the coronavirus 2019 (Covid-19) in the city of Wuhan, province of China in December 2019, much has been written about this disease, making hundreds of statistics through repeated surveys in the media, as well as in the spread of information through digital networks about the negative effects it is currently implying, as well as questioning what will be the main involvement in the future in the global economy. Finally, on January 30, 2020, the World Health Organization (WHO) declared Covid-19 as a pandemic, this circumstance leads to analyze what is the reality of the impact on the economies-businesses-families-governments, since we found that there is a deep sense of uncertainty that leads to a clear slowdown in the economy (falling stock markets at the international level with a rapid fall in the price of financial assets), an impact on the international economy by reducing imports, closing borders (closure of airports, ports, roads, etc.), among others.

THEORETICAL FRAMEWORK

But what are the measures that countries will have to take to deal with this emergency? Under this fluctuation generated by the pandemic, countries will have to make important decisions to promote the economy, measures such as public deficits to boost their health sector and economic activity. Facing a potential acceleration of inflation, as well as the generation of trade frictions, low growth, and a bulky debt. Thus, the following Figure 1 shows the volume of closed share purchases and sales and the adjusted price after the market closure of the shares on the IBEX 35 (Spanish stock exchange) from February 14 to March 25, 2020. Towards February 28, 2020, the stock market indices in Spain could be seen to have suffered significant losses because of the uncertainty generated by the rapid expansion of the Covid-19 outbreak originating in China.

The volume valued in millions of euros accumulated from February 28th to March 26th can be seen how there was a decrease in movement of 46%, a considerable loss. As for the closing price adjusted for dividends and splits, we can observe a decline in the same period of 20% (Figures 1 and 2). This reality shows clear volatility of the market reflecting this uncertainty in the international market. Thus, the Spanish government has targeted economic stimulation through liquidity provision mechanisms.

Source: Own elaboration from data extracted from IBEX 35

Volume (million euros)

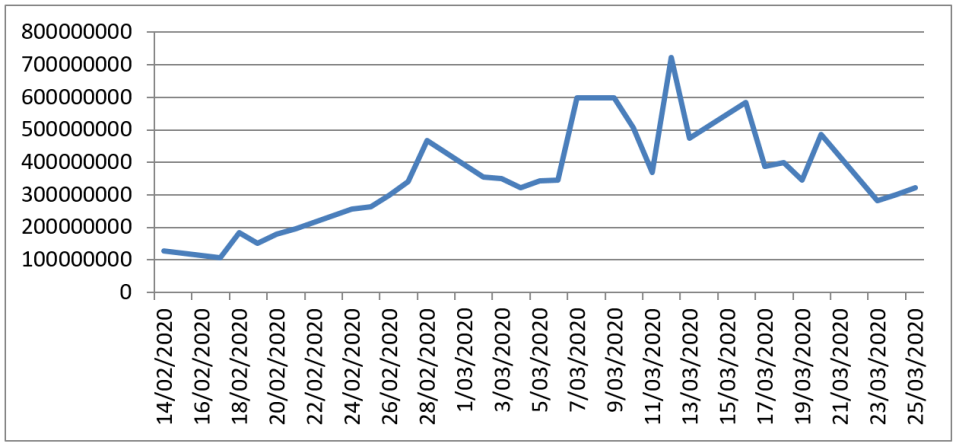

Figure 1. Evolution of Volume, IBEX 35

Source: Own elaboration from data extracted from IBEX 35

Adjusted closure

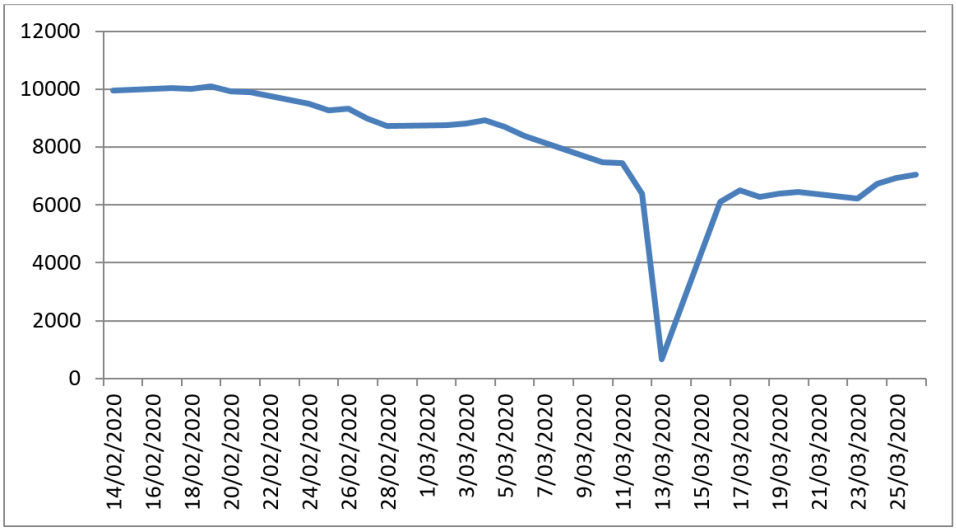

Figure 2. Evolution of Adjusted Closure, IBEX 35

Under this prism of loss of muscle and economic stimulus, it raises the need to reorganize the economy under a new system. Likewise, it is necessary to rethink public investment in health because this crisis is devastating for the health system of any country.

In this sense, we can see how it is difficult to dissociate a health crisis from an economic crisis, which is why the negative impact it is having on health policies must be added to the pandemic caused by Covid-19. This circumstance should lead us to reflect on how to deal with the health pandemic and the economic crisis. We should also ask ourselves the following question: what are we going to do to get out of it? Although the simplest answer is associated with monetary policies, reducing consumption taxes, increasing liquidity, raising unemployment benefits temporarily, increasing the volume of public funds to 8.8% of GDP, allocating a total of 0.5% of GDP to public spending (Ministerio de Asuntos Económicos y Transformación Digital, 2020), as well as increasing health spending (all these policies applied by the Spanish government in recent days).

Likewise, and to be able to take up new challenges not only in the short term but two basic conclusions should also be drawn, which are interrelated. First, technology, especially artificial intelligence (AI) and collaborative platforms can help us a lot now and especially in the future. Second, using economic intelligence, global problems can be solved globally. Without a doubt, AI will be the key to advancing this global response.

On the other hand, overall productivity is limited because of the disease, due to quarantine measures or the need for greater involvement of workers in the care of children and/or elderly people of such confined workers. This circumstance will immediately lead to a situation of work absenteeism, a decrease in productivity, temporary layoff files (expedientes de regulación temporal de empleo or ERTE) that are being applied generally in Spain (Ministerio de Asuntos Económicos y Transformación Digital, 2020), and even an increase in teleworking.

Most of the analyses obtained in the economic literature point out how AI has an enormous impact on the labor, productive and organizational market (Brynjolfsson, et al., 2017; Acemoglu & Restrepo, 2018). However, we cannot forget how this concept can become essential for the solution to the health crisis.

In this sense, and taking the case of China as an example, it is shown how the application of AI has remarkable success in predicting the behavior of the virus and also to the behavior of people who have the virus. This is essential so that health systems do not lag and have the capacity to anticipate the care needs. It is very surprising to see how the response to a global health crisis is not yet faced with a global response, so most countries are making many of the same mistakes in the initial phases of the pandemic, as has been seen for Spain.

While we focus on the economic issue, the situation is very similar to the health issue. In these circumstances, and depending about each country, a global response to a global problem can be given. The reality of this approach would allow us to refer back to Keynes, as well as re-read Schumpeter, and even give airs to Lonergan's economic theory concerning his theory of production where he emphasizes that "economic dynamics as a process of innovation and growth that consumes time, in which the result of production increases and also changes" (DeNeeve, 2009: 163). It should be noted that all three are very contrary to the Malthusian postulates: "as the population grows in geometric progression and resources do so in arithmetical progression, diseases and pandemics arise to adjust the difference", which, I fear, will become fashionable again in the 21st-century version soon.

What is happening to us in economic terms is a very rare phenomenon. It is called symmetrical external shock. It means a devastating economic crisis caused by behavior outside the economy (external shock) and affecting everyone equally (symmetric shock). We must go back a century (from 1918 to 1920) to find a similar reference: the Spanish flu. The virus, which was responsible for the death (usually from very serious lung and respiratory problems, with a lack of vaccines) of more than 25 million people worldwide (equivalent to 2% of the world population), is associated with Spain (with 8 million affected and 300,000 deaths) because, as a neutral country in the First World War (IGM), it was the only country that regularly reported the expansion of mortality (Rubio, et al., 2006). Unfortunately, the two symmetrical external shocks are not entirely comparable because the devastating effects of the IGM must be added to that of the Spanish flu. Initial comparative estimates indicate that extrapolating to today's economy, the rates of reduction in GDP and private consumption because of the shock would be 6% and 8%, respectively.

It is still too early to predict the long-term effects of Covid-19, but everything seems to indicate that conditions are likely to be right for an international crisis. Given these orders of magnitude, it is very important to quickly assume that asymmetrical external shock is the ideal situation for the development of Keynesian policies, as most countries in the world began to do, especially after the crisis of 29. This means that all economic policies must be prepared for a more or less long period of exceptionality when economic flows come to a halt. In other words, applying the Keynesian recipes of a lifetime. The European Central Bank (ECB) has already begun to do so. Soon it will be the turn of fiscal policy, the governments. Do not rule out seeing things that were unthinkable until now: for example, tax moratoria and exemptions. They are already taking their time and will certainly reach the citizens as well. When the economic flow stops, collections, payments, and taxes cease to make sense and are the basis for later distortions. But in a context of high debt, who pays for Keynesian prescriptions? This is the big question that the world will have to face in the coming months. In countries such as Spain and Italy, which are already heavily indebted, there is no choice but for the ECB to take on a large part of the public debt to be issued. However, this will not be

enough, and we will have to see how the real debt problem is dealt with at a global level. In economic terms, as well as in health terms. Resolution at the global level. It will soon be a hundred years since Keynes spoke of a Central Bank and a world currency.

However, all these actions only help to alleviate the problems of demand, and the crisis is also one of supply. Therefore, it is now Schumpeter's turn. The longest period of stability, growth, and reduction of inequalities that the world economy has experienced in its history (from 1945 to 1973) was preceded by asymmetrical external shock (the Spanish flu), two world wars and the technological base (combustion engine, electric power, fossil fuels) that consolidated the second industrial revolution. Therefore, the necessary factorial facts for the sustained economic growth occurred, this is, the producers obtained money and/or credit; innovations were generated (work, organization, machinery) that generated new means of production; there was a delay of production in the previous period giving to an increase in the total production of consumer goods and services; there was a redistribution of the income due to the adjustment given by the previous economic cycle; and finally, the increase of the returns from the innovation was increased (DeNeeve, 2009).

A century later, it seems that if we can take advantage of the technological base offered by the second wave of digitalization (led by AI) and the momentum for change generated by the symmetrical external shock of the Covid-19 and others to come, surely more linked to the climate emergency, we could establish a new period of growth and stability based on a fourth industrial revolution. However, the establishment of global management and regulatory bodies is essential. We will see what happens to nation-states throughout the 21st century.

But, let us go to the offer. With AI and its components, especially robotics and intelligent learning systems, my perception is that the current crisis will encourage, and much, its application to the productive structure. The new scenario of global value networks is the following: (i) uncertainty regarding the evolution of viruses (the current one and others) and the needs (current and future) for containment; (ii) symmetrical external shock of demand and supply; (iii) the prevailing need to predict behavior and possible market developments; and (iv) the dispersed labor force, with production possibilities but with needs for flexibility.

In this context, it seems clear that those technologies that predict behavior allow remote activity and flexibly organize production and work will grow very strongly when the economic flow resumes. And, lo and behold, the combination of AI and collaborative platforms will, I think, take the cat out of the bag. The learning and behavioral forecasting power of AI added to the disintermediation capacity (more direct connection between economic agents) of the platforms, generates a competitive advantage that is practically unsurpassed. One only must look at the activity of all those platforms that connect virtually all kinds of product and service needs with people, and that use all kinds of algorithms to do so. This business model is practically extrapolated to all branches of activity, and we believe it will grow a lot in the future.

Thus, the collaborative economy must become a fundamental pillar in the context of competitiveness, as well as of the need to generate competitive advantages by positioning itself, thanks to new technologies, in a driving initiative for the process of innovative socio-economic creation. On the other hand, and as a rule, this type of economy allows reducing asymmetric information, as well as transaction costs (Frenken and Schor, 2017).

However, in the collaborative economy, three types of platforms can be distinguished, as can be seen in the following Figure 3, where, as they indicate (Frenken & Schor, 2017: 5) "the sharing economy is placed in the center as it adheres to the three defining characteristics: consumer-to-consumer interaction (c2c), temporary access and physical goods". As can be seen, platforms for the sale of second-hand products allow permanent access to the consumer in the market, while the product-service economy shows the offer to the consumer, thus making the producer or offeror more efficient and allowing him to offer his product constantly to the market thanks to the free access allowed by new technologies. And finally, the on-demand economy or economy of gigs that can be summarized as the rapid access to goods and / or services by consumers online. With this model at present, and taking into account the confinement of society, it allows the acquisition of food without the need to leave your home, or the scientific community

allows the acquisition of real-time information from current research and advance strategies to protect against Covid-19. Or even the government allows the acquisition of necessary medical material, as well as analyzing and knowing the development and research programs of the new coronavirus.

Source: Own elaboration from data extracted from IBEX 35

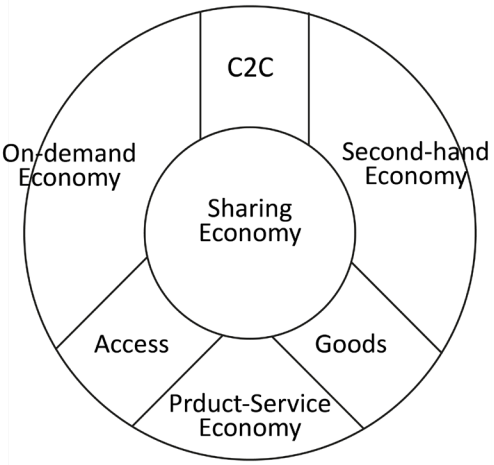

Figure 3. Sharing economy and related forms of the platform economy

This circumstance, linked to the massive use of new technologies, provides access to goods and/or services, and has also notably modified the ways of working, such as teleworking. This change of paradigm associated with labor relations revolves around the conditioning of the very concept of work (Aragüez, 2017).

That is why whenever the forms of work organization change, the model of labor relations, and the tripartite social contract between companies-workers-governments must also be modified. In the context of intelligent production and work with data already through platforms, technology allows the reproduction and control of the physical world through the virtual world, but at the time it is also capable of dividing this remote work into tasks or micro-tasks. In each of these tasks or micro-tasks, technology, and human work interact by creating, managing, or exchanging data in a specific way. Therefore, people themselves become a production function, a cluster of tasks or micro-tasks, which are complemented or replaced by a learning and collaborative technology. In this whole context, it is quite clear that collective bargaining and the social contract based on fixed contracts and wages for productivity are becoming meaningless. We will have to build together a new social contract that, based on the task or micro-task platform, builds the new conditions of governance of work in the 21st century.

In all this new history, there is a very threatened economic agent: the SMEs. the great group of companies is the constituents of small and medium-sized companies -SMEs-. In this sense, there is no change in the reality of Spanish industrial fabric, where SMEs are more prevalent than large companies. Thus, 99.8% of the Spanish productive fabric corresponds to SMEs (Iglesias et al., 2017).

If the same large company has problems surviving, it is easy to imagine how redundant many SMEs can become in the current context of uncertainty, confinement, and remote work (Kokosinska & Rekowski, 2013). Surely, there will be no other choice and high mortality rates will have to be accepted among this business fabric.

Based on the behavior of this type of company in a situation such as the one we are experiencing in Spain, there will be a phenomenon of profound fluctuations that will affect labor productivity. In all the crises that have occurred in this country, SMEs have produced a phase of decrease in labor productivity, as well as the destruction of jobs (Aceleanu, 2013).

However, it is also true that the main competitive advantage of SMEs is their flexibility and capacity to adapt, which is much greater than that of large companies. To the extent that they can mobilize their dynamic adaptation capacities, many SMEs can evolve. However, all this also depends on the public policy being able to provide all the capital they need to do so and especially that this capital reaches them. Again, Keynes and Schumpeter in one.

CONCLUSIONS

The above-mentioned circumstances encourage the analysis of the experiences of the Spanish economy throughout crisis such as the present one.

The appearance of symptoms of crises related to a pandemic has been historically demonstrated (the case of the Spanish flu) as the evolution of employment growth, productivity growth and investment is determined by an increase in public spending, and countries must adopt economic and financial policies that are highly directed towards consumers and SMEs.

Another conclusion that should be drawn from this crisis is that it should be directed towards increasing public spending (Gaspar & Mauro, 2020) since as has been seen during this period, the lack of infrastructure and equipment on the part of the Spanish health system has been demonstrated. Without forgetting the need to increase both public and private spending on Research and Development to enable the materialization of a digital platform and artificial intelligence in a context of additional stimulus for socio-economic improvement in health crises.

So, against the virus, artificial intelligence, and economic intelligence. Mind you, neither of these is possible without human intelligence. For the time being, let us be very prudent, strictly follow the recommendations of health intelligence, and prepare for a new world.

REFERENCES

Aceleanu, M. I. (2013) The labor market in the post-crisis economy: the case of Spain. *Theoretical & Applied Economics*, 20(3): 135-146.

Acemoglu, D. & Restrepo, P. (2018) Artificial intelligence, automation, and work. *NBER Working Paper* No. 24196. National Bureau of Economic Research.

Aragüez, L. (2017) Nuevos modelos de economía compartida: Uber Economy como plataforma virtual de prestación de servicios y su impacto en las relaciones laborales, *Revista Internacional y Comparada de Relaciones laborales y derecho del empleo*, 5(1): 1-23.

Brynjolfsson, E., Rock, D. & Syverson, Ch. (2017) Artificial intelligence and the modern productivity paradox: A clash of expectations and statistics, *NBER Working Paper*, 24001.

Clavellina-Miller, J. L. (2020) Posibles efectos del Coronavirus en la economía mundial. *Notas estratégicas*, 75: 1-8.

DeNeeve, E. (2009) La teoría general de la dinámica económica de Bernard Lonergan: ¿acaso completa a Hayek, Keynes y Schumpeter? Una interpretación. *Universitas philosophica*, 26(53), 145-179.

Frenken, K. & Schor, J. (2017) Putting the sharing economy into perspective. *Environmental Innovation and Societal Transitions*, 23: 3-10.

Gaspar, V. & Mauro, P., (2020), Fiscal Policies to Protect People During the Coronavirus Outbreak. Available at: https://blogs.imf.org/2020/03/05/fiscal-policies-to-protect-people-during-the-coronavirus-outbreak/

Iglesias, P.P., Jambrino, C. & De las Heras, C. (2017) La innovación en la Pyme: Barreras y facilitadores, *Revista de Estudios Regionales*, (110): 99-131.

Kokocinska, M. & Rekowski, M. (2013) Impacto de la crisis mundial en el empleo y la productividad de las Pymes: El caso de las grandes economías europeas. *Revista de Economía mundial*, (35): 121-136.

Ministerio de Asuntos Económicos y Transformación Digital (17 March 2020). Medidas económicas adoptadas por el gobierno de España frente a la pandemia del Covid-19.

Qi, L., Davis, A.S., Jagger, B.W., et al. (2012). Analysis by single genre assortment demonstrates that the 1918 influenza virus is functionally compatible with a low pathogenicity avian influenza virus in mice, *Journal of Virology*, 20.

Rubio. P., Naharro.G., Carvajal. A., Diez, M. & Rodríguez, A. (2006) La gripe aviar y su repercusión en Castilla y León, *Documento técnico*.

Rogoff, K. (2020) That 1970s feeling. Available at: https://www.projectsyndicate.org/commentary/next-global-recessionhits-the-supply-side-by-kenneth-rogoff-2020-03

This article was edited at the Universidad Autónoma del Caribe, Barranquilla, www.uac.edu.co, and at the Miguel de Cervantes University, Santiago de Chile, https://www.umcervantes.cl/.