

# **THE COVID-19, GENERATOR OR ACCELERATOR OF THE CURRENT BANKRUPTCY OF THE WORLD ECONOMY ? LE COVID-19, GENERATEUR OU ACCELERATEUR DE LA FAILLITE ACTUELLE DE L'ECONOMIE MONDIALE ?**

**Ferdinand OUEDRAOGO**

*Assistant Professor, University Thomas Sankara (Ex. Université Ouaga 2)  
Burkina Faso*

[ouedraogo.ferdinand@yahoo.fr](mailto:ouedraogo.ferdinand@yahoo.fr)

**Abstract:**

*The Covid 19 pandemic is indexed everywhere as the root cause of the current global economy bankruptcy. The results of this study present the facts and causes differently. They show that the bankruptcy of the world economy started long before the start of the pandemic. Also, the results of the study showed that the causes of theoretically known market failures (market power, asymmetry of information, etc.) justify the current failures of the world economy, but there would always be other hidden causes not still revealed by economic theory. This would include, among other things, not taking into account the dependence of output markets face to face to input markets, ignorance of the contribution of economic interference to the collective efficiency of markets, ignorance of the scale of virtual transactions that are sometimes invisible or unobservable.*

**Keywords:** *World economy, monopolization, debt, coronavirus, interference, bankruptcy.*

**Résumé :**

*La pandémie du Covid 19 est indexée partout comme étant la cause essentielle de la faillite actuelle de l'économie mondiale. Les résultats de la présente étude présentent autrement les faits et les causes. Ils montrent que la faillite de l'économie mondiale aurait démarré bien avant le début de la pandémie. Aussi, les résultats de l'étude ont montré que les causes de défaillances de marchés théoriquement connues (pouvoir de marché, asymétrie informations etc.), justifient les défaillances actuelles de l'économie mondiale, mais il se cacheraient toujours d'autres causes non encore révélées par la théorie économique. Il s'agirait entre autres de la non prise en compte de la dépendance des marchés extrants vis-à-vis des marchés intrants, de l'ignorance de la contribution des interférences économiques à l'efficacité collective des marchés, de l'ignorance de l'ampleur des transactions virtuelles parfois invisibles ou inobservables.*

**Mots-clés :** *Economie mondiale, monopolisation, endettement, coronavirus, interférences, faillites .*

**Classification JEL :** *D41, D61, J64, O47, P19.*

## **1. Introduction**

The coronavirus is a global pandemic caused by the SARS-CoV-2 virus discovered in 2019 in Wuhan, a large Chinese city of 10.76 million people.

This pandemic, which mainly affects the respiratory tract, infected according to the WHO as of May 9, 2020 nearly 3,808,579 people spread across all continents of the world with 189 affected countries out of 202 (95%).

It killed 269,564 people and forced more than a third of the world's population into total containment, crippling all global economic activity. And as of May 9, the United States is in the lead with nearly 1,257,023 and confirmed cases and 75,662 deaths.

The global economy is severely shaken today with the outbreak of the coronavirus pandemic around the world.

The coronavirus pandemic caused a collapse of the world economy with a decline in world GDP of 3%, a drop in world trade between 13 and 32%, and a 30% drop in the price of a barrel of oil. It caused the collapse of the stock markets including that of Wall Street -7.6%, London - 10.9%, Toronto -2.2%, Madrid - 14%, Frankfurt - 12.2%, Milan - 17%, a record drop in their history (National Bank of Canada, 2020).

Under these conditions, a loss of jobs for nearly 305 million people worldwide is expected in the second quarter of the pandemic in 2020 (ILO, 2020).

This collapse of the global economy shows that the competitive markets it relied on could not withstand the coronavirus explosion around the world. The important questions that concern us are: Wasn't the global economy on the brink of collapse before the coronavirus? Is the outbreak of the coronavirus around the world enough to account for the current scale and speed in which the world economy has collapsed? Were there not stowaways to turn the coronavirus into a godsend?

The aim of this study is to provide answers to these questions through an analysis of the structure and foundations of the market economy on which the world economy is supposed to rely to be effective.

Thus, in the first section of this study, we will deal with an inventory of the bankruptcy of the world economy, and then an analysis of the conditions of pure and perfect competition, supposed to be its foundations for sustainable development.

The second section is an analysis of the dependence and economic interference between markets by distinguishing output markets from input markets, physical markets from virtual markets. It will bring out the missing elements in a market economy so that the level of competition can approach genuinely perfect and collectively effective competition.

The last section of the study is devoted to an analysis of the interference of the Chinese market with the rest of the world and the consequences in economic and social terms.

## 1. The Collapse of the World Economy: Were the Pillars of the World Economy Really Strong?

The coronavirus, an epidemic rapidly growing in the scale of a global pandemic in the space of a few months, infected as of May 10, 2020 nearly 3,808,579 people in all the continents of the planet of the world causing deaths of more than 269 564 people, the total containment of nearly a third of the world's population and the paralysis of the entire global economy.

*Table n ° 1: Distribution of confirmed cases and deaths by continent according to their population and area*

Continents	Area	Number of countries	Population	Density	Confirmed case	Cases treated	Death	Cure rate	Death rate
America	42189120	35	1006801000	24	1475161	296493	85268	20	5,7
Europe	10180000	50	743000000	73	1464438	550475	141380	37,5	9,65
Africa	30415873	54	1225080510	40	42772	14169	1064	33	2,4
Asia	43810582	47	4342255000	99	535807	276629	18999	51,6	3,5
Oceania	8525 989	16	38277000	4	8254	6534	98	79	1,1

*Source: statistics obtained from WHO, the World Bank and our own estimates, 2020.*

In view of the negative impacts of the coronavirus pandemic on economic growth, a decline in global GDP of 3% is expected at the end of 2020 with disparities in decline by country of around 5.9% for the United States, 9.1% for Italy, 8% for Spain, 7.2% for France, 7% for Germany, 6.5% for the United Kingdom, 1.2% for China, 1.9% for India (R. Chang Yong, 2020).

Industrialized countries will experience a fall in growth of around 6.1% and the world economy is likely to experience an economic recession of between -2.1% and 5.1% (R. Chang Yong, 2020).

In March 2020 alone, the crisis had already generated economic losses estimated at \$ 2.7 trillion, the equivalent of the Gross Domestic Product (GDP) of Great Britain and no one knows until when this should last (MM Modibo, 2020).

Global trade will collapse between 13% and 32% in 2020 (M. Azevêdo, 2020).

About 2.7 billion workers, or 81% of the entire global labor force, have been forced into short-time working according to the World Labor Organization (ILO, 2020). And the latter predicts for 2020, 20 to 35 million the additional working poor linked to the coronavirus pandemic according to its estimates based on medium and pessimistic scenarios.

The coronavirus pandemic has plunged oil prices by 21% since January 20, 2020, to their lowest level since 2018-2020 (M. Azevêdo, 2020).

Growth in sub-Saharan Africa will be strongly affected by the coronavirus pandemic. It will drop from 2.4% to -5.1%, entering its first recession in more than 25 years (A. Touré, 2020).

Regarding the impact of the spread of the coronavirus on the economy of Burkina Faso, a slowdown in growth is expected which will probably fall to a range of between + 1.38% and - 1.75% in 2020 against 5.7% in 2019, a drop in sectoral production of 3 to 12% likely to generate an increase in unemployment from 1.93 to 5.92%, a contraction of sectoral exports of 6% mainly for gold if the pandemic should last between 3 and 6 months (M I Ouedraogo and al, 2020).

At the level of the UEMOA zone and the ECOWAS zone, food security has been favored for a number of years by the application of regional texts authorizing the free movement of people and goods. Thus the food product deficits of certain member countries were filled by other countries which had surpluses. This made the prices stable and the food supply available in most of the member countries of UEMOA and ECOWAS. With borders closed due to the spread of the coronavirus, there will be risks of price spikes in most deficit countries. Burkina is expected to increase the price of agricultural products by 6% and increase in the price of catering by 4% (M. I. Ouedraogo and al, 2020).

The IMF (2020) has already relocated nearly \$ 8 trillion to enable countries to contain the pandemic and limit the damage caused economically.

The pandemic has forced more than a third of the world's population into containment. This would result in a huge drop in global economic activity, particularly that linked to food production, but therefore a probable increase in household consumption of foodstuffs due to the lengthening of their idle time in home.

Extending idleness is a favorable factor in the elimination of food reserves.

The rapid collapse of the global economy like a flash in the pan is proof that the market economy that is its main support has not been able to withstand the explosion of the coronavirus around the world. Was the world economy really strong before the coronavirus? Wasn't she on the brink. Wouldn't the drop of water have made the camel's back?

The collapse of the world economy was predictable before the coronavirus. Indeed, the World Bank had even announced a slowdown in global growth of 2.6% in 2019 six months before the start of the pandemic Felsenthal M. Imtiaz H. (2019).

The WTO had predicted a sharp slowdown in world trade to 1.5% with victimized countries like Germany and China. A victim of customs duties, China lost nearly \$ 80 billion in 2019 alone (Normand G, 2019).

The IMF predicted in 2016 a derailment of the world economy between 2016 and 2017 if the important transitions of the world economy are not well managed, namely the reorientation of China's growth model towards its domestic market. The latter (China) has its lowest growth rate for twenty-five years and could lead to its fall in countries like Brazil whose economy will experience a recession of 3.6% at the end of 2016 according to the IMF (2016). For the IMF (2016), the economies of all emerging countries contributing up to 70% of global growth are experiencing serious turbulence, and the price war for petroleum products that led to

collateral damage would have resulted in a shortfall in earn 2,400 billion dollars for the global economy.

And according to the FAO, information released by Pangestu M. E. (2020), 820 million people were already suffering from undernourishment and 135 million suffered from acute food insecurity before covid-19.

The United States, China, Japan and Germany are the four economic powers that generate nearly 51% of the world's wealth.

These four countries are the most heavily indebted countries on the planet and therefore threaten the survival of the world economy. An author like Greyerz EV (2018) estimated the debt level of each of these four countries in 2018 as follows: the United States for 14.6 times its GDP, China for 2.23 times its GDP, Japan for 2.6 times its GDP, and finally Germany for 2.13 times its GDP. He thus came to the conclusion that the collapse of the world economy was very near, since these are the same countries that control more than half of the world economy.

With a debt level of 2 to 15 times their GDP, it is obvious that these economic powers are experiencing inefficiencies in managing the coronavirus pandemic than underdeveloped countries but less indebted.

The collapse of the world economy was well and truly predictable before the arrival of the coronavirus. The coronavirus only precipitated the downfall of the global economy that was already being felt long before. So the bankruptcy of the world economy would not only date from the coronavirus era, it would have started long before. The 2019-2020 era of the coronavirus quite simply marks a period of acceleration and amplification across the world.

Imperfections in the functioning of markets remain the major causes of failure and bankruptcy of the economy.

However, according to the neoclassicals, markets can function perfectly and be very efficient in terms of allocation of resources and maximization of collective well-being if they manage to respect four conditions of competition which are as follows: atomicity of supply and demand, free entry and free exit of sellers and buyers on the market when they want it, homogeneity of products sold on the market, market transparency.

The criticisms generally leveled at this theory are: the cases of the formation of natural monopolies, the concentration of markets in groups, cartels and monopolies show that the conditions of atomicity of supply and demand are difficult to obtain. Today we are in the world of innovation where supply imposes its own demand, the differentiation of the products offered in the market and the segmentation of the market in relation to demand. In doing so, it is difficult to obtain homogeneity of the products for sale on the market. Free access to information for market transparency is almost impossible. Information can circulate with a delay resulting in a late adaptation between supply and demand. Thus, the longer a seller waits and the more he condemns himself to the sale of his more expensive property and the more a

buyer waits, the more he condemns himself to buy his more expensive property. The conditions of pure and perfect competition are seldom met.

Competition lowers the price to its marginal cost level in the long run and the profits made by companies will tend to disappear. This would justify the relocation of European and American companies, victims of this bitter competition in their own countries, to move to China, where production costs seem more accessible and allowing them to obtain very significant profits. The United States, Japan, Germany, France, Canada and Italy provide the largest number. According to Resort Condominiums International (RCI, 2010), the number of foreign-invested enterprises established in China has reached 680,000, and among them there are more than 58,000 American enterprises. In 2012 there were nearly 1,400 companies for France and more than 5,000 for Germany. The shortages of masks in Europe, the United States and Canada are said to be linked to the fact that factories capable of supplying these masks to Western populations have mostly been relocated to China. Also the coronavirus pandemic would have links with the high security Wuhan P4 laboratory that France would have sold in 2016, turnkey to China which has remained little attentive to security measures despite the arrests of the American authorities. Profit maximization being the primary objective of companies, the achievement of such an objective could incite them to all forms of abuse and fraud, capable of creating market dysfunctions, endangering all the security of populations in terms of health, food and finance.

According to Hubert Reeves (2014), a former NASA astrophysicist said: "Profit and security don't mix." The coronavirus represents for some companies an opportunity for the dismissal of their workers in order to reduce costs and be able to maximize their profits. This is how the stowaway windfall is built.

The four conditions of competition in question for the perfection of the markets, although difficult to apply, appear to be indispensable conditions but not sufficient in view of the major failures of the markets.

Indeed, these conditions have so far only applied to final product markets called output markets. Yet the latter are entirely dependent on the existence of other markets for intermediate products called inputs.

The market has never been free as we always wanted it to be, it is frequently subject to manipulation by authorities and business elites, yet it needs to be to be more efficient. A free world market would not have allowed 4 out of 202 countries to obtain and control more than half of the world's wealth. A free global market would not have enabled China to generate alone more than a third of global economic growth in 2018 and to gain a certain natural monopoly on the global economy (Azevêdo, M. 2020).

The objective of the following section is to shed more light on the typology and functioning of markets: their dependence, their interference, and their conditions of competition.

## 2. The output, input, physical and virtual markets: dependence, interference and competition

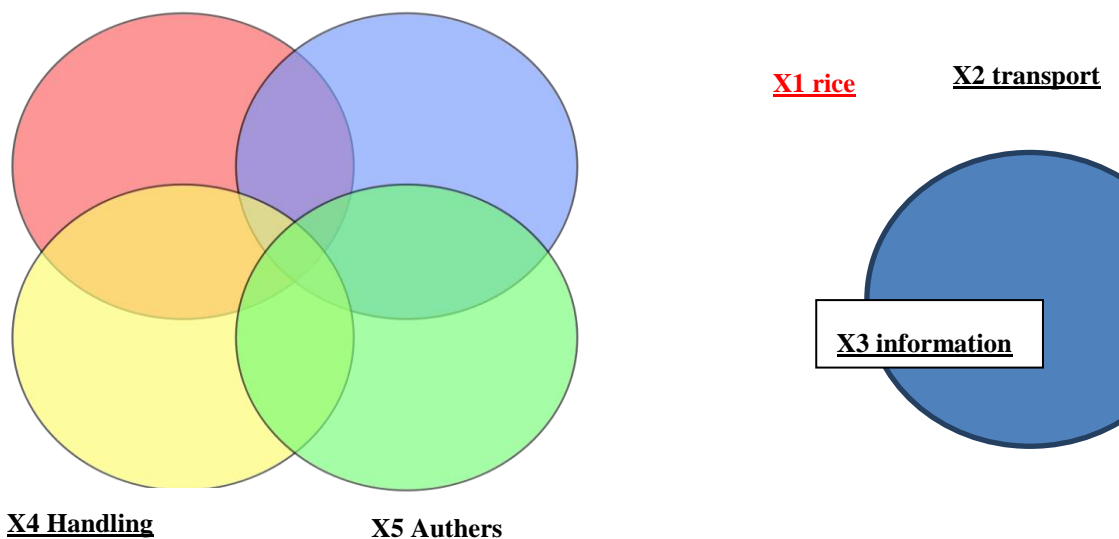
The output market for a good can be defined as the market for that good as a final good for sale in the market. This is the case for example in the rice market where rice is sold in the market as an end product. On the other hand, the rice input market can be defined as the market for intermediate products as inputs participating in the production of rice and its sale on the market. This is the case, for example, with seeds, fertilizers for its production, energy and equipment for its processing, transport and handling for its marketing.

Output markets are seldom independent of input markets. They are very dependent on each other. This is why putting them in competition with each other independently of the others does not produce satisfactory results. For example, wanting the rice produced in Burkina Faso to tend towards a perfectly competitive market would be nonsense if we did not first organize perfect competition for the marketing of seeds and fertilizers for production, energy and equipment. for processing, transport and handling for marketing. It is the lack of competition in input markets that will be at the origin of monopolies, oligopolies, all forms of market power in output markets and likely to make them fail.

The output market is generally the visible market exposed or subject to competition. Input markets are sometimes absent or hidden after the launch of the output market. They should therefore be recreated, identified, made visible and effective by subjecting them to competition.

In Burkina Faso the rice market is an output product market linked for example to input service markets such as information, transport, handling which are useful markets which make the supply available on the market and its reconciliation with Requirement. However, these are not the only markets that are interdependent on the rice output market. There are other essential markets that are absent from the chain and which should always be created if necessary.

*Graph 1: Functional dependence of the output market on the input markets*



For the rice output market (x1) to be truly competitive, the same conditions of pure and perfect competition applied to this market would have to be subject to each of the input markets X2, X3, X4, X5.

By physical market, we mean any market that geographically delimits output and input markets. The physical markets can constitute in a given space a set of markets interfering economically with each other by movements or exchanges of real flows (case of movements of men, goods, capital etc.) or virtual (case of circulation information using ICTs, the circulation of cash or electronic money

The physical markets communicate with each other through the circulation of real and monetary flows, but nowadays by the circulation of information flows facilitated nowadays by ICTs in particular mobile telephony and the Internet thus modifying the configuration of the economic circuit such as that designed by Quesnay and Keynes who had only considered real and economic flows in the circuit diagram.

Let us consider s1, s2 ..... if, physical rice markets (Ouagadougou, Banfora, Bagré, Mogtédo) considered as being interdependent because they exchange agricultural goods between them mainly rice, exchanges materialized by the circulation of flows between these markets.

The economic interference exists between these markets s1, s2, ....., if when the real monetary and information flows circulate between these markets.

The level of economic interference of a given market sX is equal to the economic interference of that market with other local markets plus its economic interference with foreign markets. The transactional weight of a market is the ratio between the level of economic interference in this market and the number of markets in the economic space.

We can thus present the model as follows:

$$F_i(nsi, mSi, \dots, zXi) = \frac{\alpha(nsi + 1)}{Nsi} + \frac{\beta(mSi + 1)}{MSi} + \dots + \frac{\mu(zXi + 1)}{ZXi}$$

$$= \frac{\alpha(nsi + 1)MSi \dots ZXi + \beta(mSi + 1)Nsi \dots ZXi + \mu(zXi + 1)Nsi.MSi \dots ZXi + 1}{Nsi.MSi \dots ZXi}$$

$F_i(nsi, mSi, \dots, zXi)$  is a function representative of the level of market interference ..  $nsi$ ,  $mSi$ , variables representing respectively the level of national interference (interference with local markets), the level of interference international (interference with foreign markets), and finally  $zXi$  any other variable contributing to market interference.  $Nsi$  represents the total number of local agricultural transaction markets,  $nsi$  the number of local markets related to each local market.  $MSi$  is the total number of foreign markets for agricultural transactions with local markets and  $mSi$  is the number of foreign markets related to each local market.  $\alpha$ ,  $\beta$ ,  $\lambda$ ,  $\mu$  are coefficients assigned to the different variables  $nsi$ ,  $mSi$ ,  $rCi$ , ...  $zXi$  according to their importance in the economic interference of the market. There are three types of economic market interference: economic interference can be total, partial and inter-temporal.

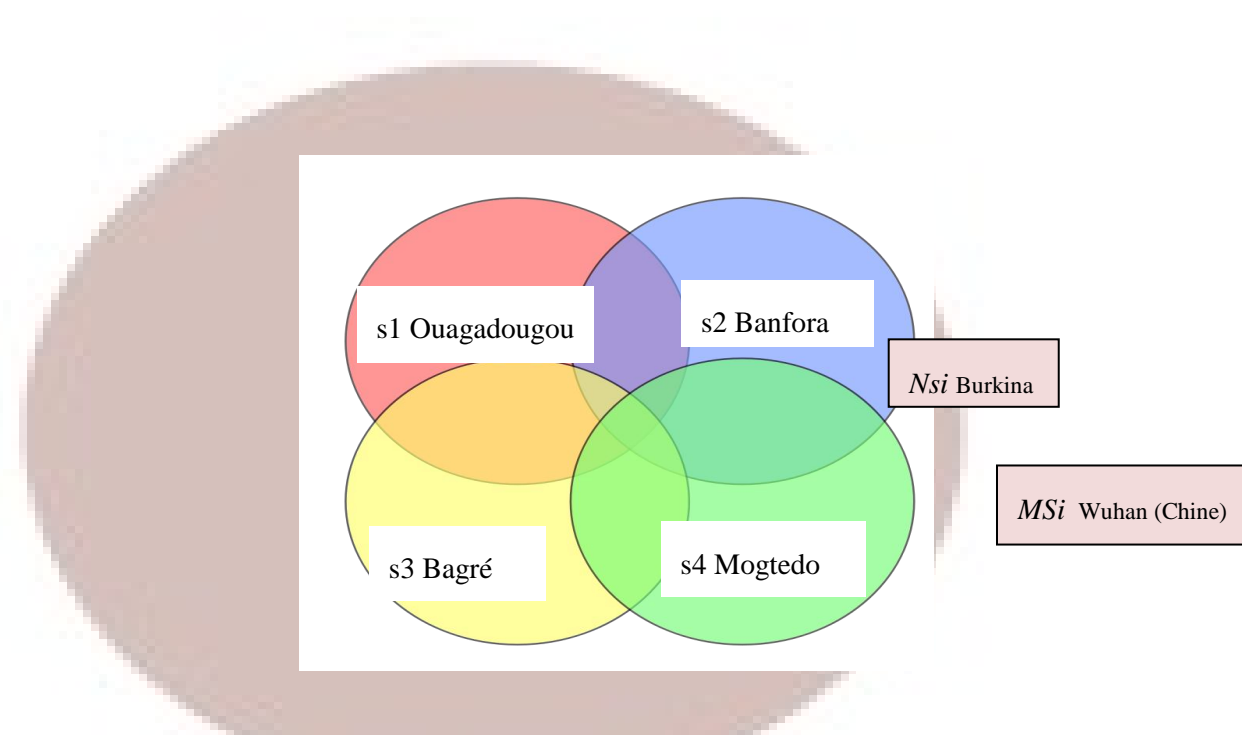
Economic interference is total when there is transitivity in the circulation of flows

In a situation of interference between markets, the price information published on one market is systematically propagated or passed on without cost to other markets, thanks to the movement of flows. However, in reality the economic interference of markets is generally partial because it is rare in Africa to obtain transitivity in the circulation of flows. The functioning of the markets is imperfect.

Economic interference is inter-temporal when the markets do not manage to communicate with each other immediately but at a later stage, that is to say a few periods afterwards (a few days, a few weeks, a few months, or a season) or when the markets also interrupt their communication between them some periods after. Here there is always an exchange of goods between the different markets but at a slow rate of flow.

Economic interference has the advantage of being able to provide information about virtual transactions. The development of ICTs has made it possible to make the circulation of information flows transitive, thus allowing a conversion of partial interference into total interference. ICTs have also made the circulation of real flows, in particular the movement of individuals and goods, more regular and faster.

*Figure 2: Economic interference between physical markets*



The output market linked to its input counterparts constitutes a system generally housed in one or more physical markets which are geographically well defined. However, the whole system (output markets and associated counterparts) must be subject to the same conditions or to the same rules of pure and perfect competition for the output market to be efficient.

It is for this reason that borders and geographical delimitations should not constitute obstacles to the achievement of perfect competition. And even in the event that an input market depending on an output market is found in another geographic area, it should not escape competition if its output partner is to be efficient.

From Figure 1, we can write the rice supply equation as follows:

If an economic space for the rice market in Burkina is made up of the physical markets of Ouagadougou (S1), Banfora (S2), Bagré (S3) and Mogtédou (S4) and an international market including that of Wuhan (S) in China with the same output and input markets, we can write the following equations:

$S1(X1, X2, X3, X4, X5) = a1X1 + a2X2 + a3X3 + a4X4 + a5X5$  for  $a1, a2, a3, a4, a5$  positive

$S2(X1, X2, X3, X4, X5) = b1X1 + b2X2 + b3X3 + b4X4 + b5X5$  for  $b1, b2, b3, b4, b5$  positive

$S3(X1, X2, X3, X4, X5) = c1X1 + c2X2 + c3X3 + c4X4 + c5X5$  for  $c1, c2, c3, c4, c5$  positive

$S4(X1, X2, X3, X4, X5) = d1X1 + d2X2 + d3X3 + d4X4 + d5X5$  for  $d1, d2, d3, d4, d5$  positive

$S(X1, X2, X3, X4, X5) = e1X1 + e2X2 + e3X3 + e4X4 + e5X5$  for  $e1, e2, e3, e4, e5$  positive

National rice supply  $S(X1, X2, X3, X4) = \sum_{i=1}^4 Si(X1, X2, \dots, Xi) = S1(X1, X2, X3, X4, X5) + S2(X1, X2, X3, X4, X5) + S3(X1, X2, X3, X4, X5) + S4(X1, X2, X3, X4, X5)$

$= (a1+b1+c1+d1+e1) X1 + (a2+b2+c2+d2+e2) X2 + (a3+b3+c3+d3+e3) X3 + (a4+b4+c4+d4+e4) X4 + (a5+b5+c5+d5+e5) X5$ . If demand is a function of the conditions of the 4 markets, we could deduce its equation as follows:

$D(X1) = (a1' + b1' + c1' + d1') X1$

$\underline{S}(X1, X2, \dots, Xi) = D(X1) = (a1+b1+c1+d1+e1) X1 + (a2+b2+c2+d2+e2) X2 + (a3+b3+c3+d3+e3) X3 + (a4+b4+c4+d4+e4) X4 + (a5+b5+c5+d5+e5) X5 = (a1' + b1' + c1' + d1') X1$

$(a1' + b1' + c1' + d1') X1 = (a1+b1+c1+d1+e1) X1 + (a2+b2+c2+d2+e2) X2 + (a3+b3+c3+d3+e3) X3 + (a4+b4+c4+d4+e4) X4 + (a5+b5+c5+d5+e5) X5$

**X1**

$$\begin{aligned} & [(a1 + b1 + c1 + d1 + e1)X1 + (a2 + b2 + c2 + d2 + e2)X2 + (a3 + b3 + c3 + d3 + e3)X3 \\ & \quad + (a4 + b4 + c4 + d4 + e4)X4 \\ & \quad + (a5 + b5 + c5 + d5 + e5)X5] \\ = & \frac{\quad}{(a1' + b1' + c1' + d1')} \end{aligned}$$

$X1 = A1X1 + A2X2 + A3X3 + A4X4 + A5X5 = \sum_{i=1}^5 AiXi$  (1)

Avec  $A1 = (a1 + b1 + c1 + d1 + e1)/(a1' + b1' + c1' + d1')$ ,  $A2 = (a2 + b2 + c2 + d2 + e2)/(a1' + b1' + c1' + d1')$ ,  $A3 = (a3 + b3 + c3 + d3 + e3)/(a1' + b1' + c1' + d1')$ ,  $A4 = (a4 + b4 + c4 + d4 + e4)/(a1' + b1' + c1' + d1')$ ,  $A5 = (a5 + b5 + c5 + d5 + e5)/(a1' + b1' + c1' + d1')$

This equation (1) clearly shows that the rice output market (X1) of the economic space(s) of Burkina Faso is indeed a variable dependent on itself first, then dependent on the input transport market (X2), the information input market (X3), the handling input market (X4), and many other markets (X5) that remain to be discovered or created.

The coefficient A1, A2, A3, A4, A5 represent the transactional weight of the markets. The conditions for obtaining total economic interference between the markets is when the coefficients  $A1 = A2 = A3 = A4 = A5 = 1$ . When they are less than 1, economic interference remains partial.

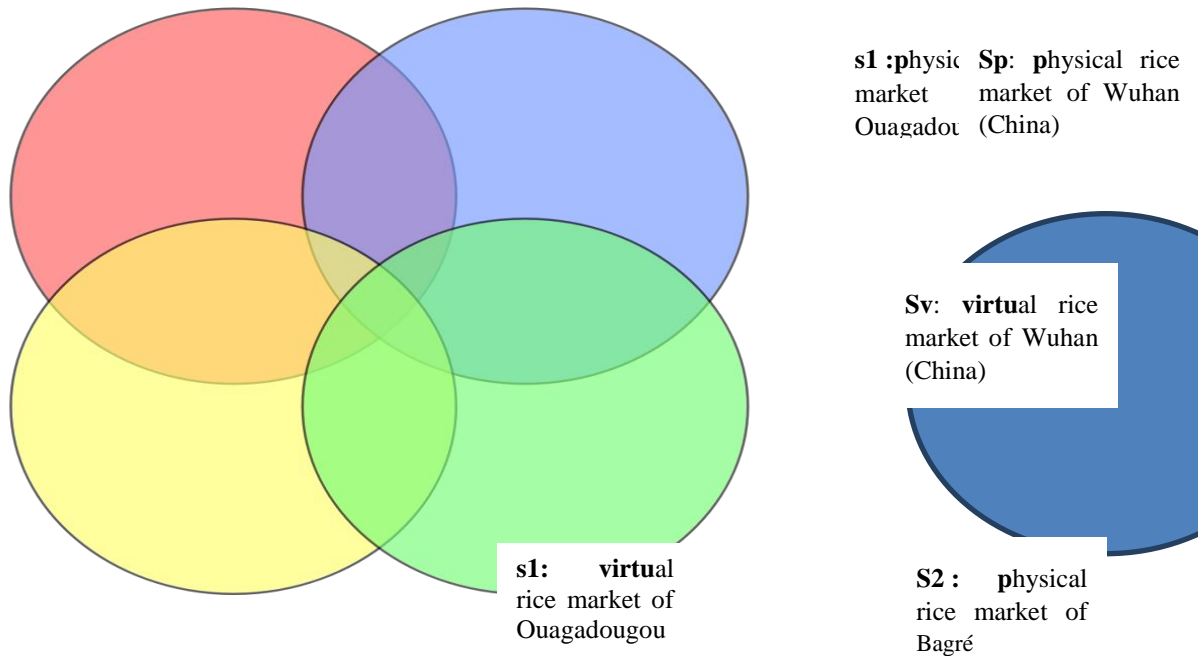
Output markets depend on input markets which may be present or absent from the economic space. When they are absent, they should be systematically created.

Output markets and input markets must be subject to the same conditions of pure and perfect competition for the achievement of perfect collective competition. At this stage of collectively perfect competition, markets become true artificial intelligences, self-regulating in the event of failures without state intervention and maximizing collective well-being.

By virtual market is meant the whole set of merchant networks which are informal institutions (Egg, Galtier and Grégoire 1996) with offers and demands for goods geographically dispersed over several sales and purchasing locations that vary depending on market conditions. market (quantities, price, taxes, period etc.). Unlike physical markets where you can go to stores or places of physical display of goods, to buy or sell, virtual markets are markets where there is necessarily no obligation to go in a store or any place to buy or sell goods. Most of the purchase and sale of merchandise transactions take place online, over the Internet, by WhatsApp, by mobile phone, by Tics to be more global.

Graph 2 shows mainly the economic interference between physical markets: between for example the physical market for rice in Ouagadougou (s1) and the physical market for rice in Bagré (s3) and between the physical market for Ouagadougou rice (s1) and the Wuhan (S) physical rice market in China. Graph 3 below also shows the existence of economic interference between the virtual rice market in Ouagadougou (s1 ') and the virtual Wuhan rice market in China (S'), between the physical rice market in Ouagadougou (s1) and the Wuhan (S ') virtual rice market in China.

Graph 3: Economic interference between physical and virtual markets



If an economic space of the rice market in Burkina consists of the physical markets of Ouagadougou (S1), Bagré (S2), the Wuhan market (S) in China and other virtual markets such as Ouagadougou and Wuhan.

with the same output and input markets, we can write the following equations:

$$S1(X1, X2, X3, X4, x5) = a1X1 + a2X2 + a3X3 + a4X4 + a5X5 \text{ for } a1, a2, a3, a4, a5 \text{ positive}$$

$$S2(X1, X2, X3, X4, x5) = b1X1 + b2X2 + b3X3 + b4X4 + b5X5 \text{ for } b1, b2, b3, b4, b5 \text{ positive}$$

$$S(X1, X2, X3, X4, x5) = c1X1 + c2X2 + c3X3 + c4X4 + c5X5 \text{ for } c1, c2, c3, c4, c5 \text{ positive}$$

$$S1'(X1, X2, X3, X4, x5) = d1X1 + d2X2 + d3X3 + d4X4 + d5X5 \text{ for } d1, d2, d3, d4, d5 \text{ positive}$$

$$S'(X1, X2, X3, X4, x5) = e1X1 + e2X2 + e3X3 + e4X4 + e5X5 \text{ for } e1, e2, e3, e4, e5 \text{ positive}$$

$$\text{The total supply } S(X1, X2, X3, X4, X5) = s1+s2+Sp+Sv+s1v = (a1+b1+c1+d1+e1) X1 + (a2+b2+c2+d2+e2) X2 + (a3+b3+c3+d3+e3) X3 + (a4+b4+c4+d4+e4) X4 + (a5+b5+c5+d5+e5') X5$$

$$D(x1) = a1'x1 + b1'x1 + d1'x1 = (a1'+b1'+d1') x1$$

$$D(x1) = S(X1, X2, X3, X4, X5) = (a1'+b1'+d1') x1 = (a1+b1+c1+d1+e1) X1 + (a2+b2+c2+d2+e2) X2 + (a3+b3+c3+d3+e3) X3 + (a4+b4+c4+d4+e4) X4 + (a5+b5+c5+d5+e5') X5$$

**X1**

$$\begin{aligned} & [(a1 + b1 + c1 + d1 + e1)X1 + (a2 + b2 + c2 + d2 + e2)X2 + (a3 + b3 + c3 + d3 + e3)X3 \\ & \quad + (a4 + b4 + c4 + d4 + e4)X4 \\ & \quad + (a5 + b5 + c5 + d5 + e5)X5] \\ = & \frac{\quad}{(a1' + b1' + d1')} \end{aligned}$$

$$X1 = H1X1 + H2X2 + H3X3 + H4X4 + H5X5 = \sum_{i=1}^5 H_i X_i \quad (2)$$

With  $H1 = (a1 + b1 + c1 + d1 + e1)/(a1' + b1' + d1')$ ,  $H2 = (a2 + b2 + c2 + d2 + e2)/(a1' + b1' + d1')$ ,  $H3 = (a3 + b3 + c3 + d3 + e3)/(a1' + b1' + d1')$ ,  $H4 = (a4 + b4 + c4 + d4 + e4)/(a1' + b1' + d1')$ ,  $H5 = (a5 + b5 + c5 + d5 + e5)X5/(a1' + b1' + d1')$

This equation (2) clearly shows that the rice output market (X1) is first dependent on itself, then dependent on the transport input market (X2), the information input market (X3), the market input to handling (X4), and many other markets (X5) that should be discovered or created.

The coefficient H1, H2, H3, H4, H5 represent the transactional weight of the markets.

The conditions for obtaining full economic interference between physical and virtual markets is when the coefficients  $H1 = H2 = H3 = H4 = H5 = 1$ . When they are less than 1, economic interference remains partial.

The study showed imperfections in the functioning of markets not yet highlighted in the economic analysis. These include, among other things, the failure to take into account the dependence of output markets on input markets, the ignorance of the contribution of economic interference to the efficiency of markets, whether physical or virtual, ignorance of the scale of virtual transactions which are sometimes invisible and difficult to capture in national statistics. Consequently, for the functioning of the markets to be efficient it would be necessary that the economic interference between the markets be strong and at least 75% of transactional weight, and that the virtual markets and inputs be taken into account in the competition and in the interfering.

The next section, which is the last, is a case of the interference of the Chinese market with the rest of the world, the analysis of its consequences at the economic and social level.

#### **4. Chinese market interference with the rest of the world: economic and social consequences**

It should be recalled that in 2019 China emerged as the world leader in the export of goods and services with export revenues of more than \$ 2,382 billion (M. Azevêdo, 2020). The Chinese economy generated more than a third (34%) of global economic growth in 2018 according to the IMF.

The development of ICTs should allow the world to move towards a digital economy with the advantages of limiting travel and physical contact, producing a competitive economy based on confidence where competitive markets for outputs and inputs together maximize well-being collective. Unfortunately, the vast majority of the global economy today remains a manually

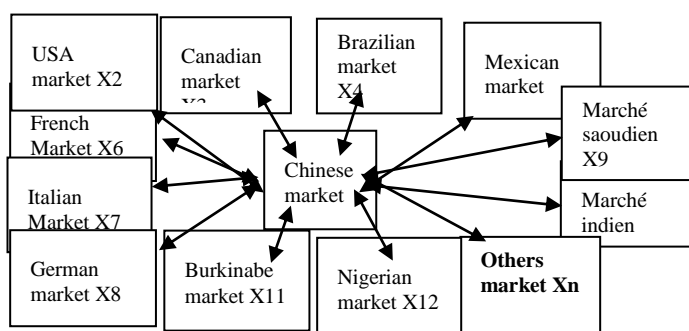
physical economy still in the process of digital transition. The scale of physical movement in commerce or business shows the degree of digitization achieved by each economy. The economy is digital when digital or virtual transactions are larger (at least 80%) than physical transactions; and manually physical when physical transactions largely dominate (also more than 80%). It is semi-digital or semi-physical when these types of transactions (semi-digital or semi-physical) represent 40 to 60%.

However, no country in the world has so far reached the stage of a fully digital economy. All countries including those considered to be the great powers, the United States, China, Germany, the United Kingdom, Canada, France, Italy and others are at the stage of manual physical economy: a economy based essentially on the circulation of real flows such as physical persons. It is the still very large scale of this type of economy dominated by the movement of natural persons and goods in international or world trade which will expose all countries around the world having trade with China, to the coronavirus disease that started in one of its major business cities (the city of Wuhan) connected to the markets of the most important cities in the world. Otherwise, if the global economy were exclusively digital built on trust with only the movement of goods and capital, the extent of the spread and contamination of the coronavirus would be less.

America, Europe and Asia were the continents most affected by the coronavirus.

Indeed, China, which is the giant of all of Asia and the second largest economy in the world, trades with all the countries of Europe and America. Many American and European companies have established subsidiaries in China, and many of them simply relocated to China to make more profit. Thus the digital economy is not fully present, economic interference between the Chinese markets and the European and American markets is still subject to the movement of individuals on the markets on both sides for negotiations, information and some decision-making.

*Graph 4: Economic interference of the Chinese market with the rest of the world*



With 34% control of world economic growth, the world economy tends to be monopolized by China, resulting in the almost total dependence of the economies of the rest of the world on the Chinese market.

The African continent, even not weighing too much on international trade (2.2%), has as its first trading partner, China with trade in goods and services for an amount of \$ 208.7 billion in 2019. This causes the circulation of physical flows in particular of many Chinese and African businessmen in physical displacement towards China and towards Africa. And it is this kind of transfer of human flows that also favors the transfer of the coronavirus from China to its African partners. As of May 9, 2020, the number of confirmed cases of coronavirus and the number of officially declared deaths in China was respectively 82,886 people for confirmed cases, and 4,633 people for deaths. This trend seems unreliable to us given the current scale of the pandemic around the world.

Indeed, with its population of 1.417 billion people, making it the head of the first most populous country in the world, its most connected market in the world with rapid and massive growth in its exports of goods and services, its means of modest response at the start of the epidemic on its territory, there would be no doubt that China is currently the country most likely affected by the pandemic.

As we have seen above, American and European countries remain China's primary partners in international trade. The economic interference of the Chinese market with the markets of these European and American countries is very strong and permanent, thereby generating the movement of many Chinese, European and American businessmen in perpetual movements between China, Europe and the United States. 'America.

Thus, if we consider under these conditions the data from China and the countries of these two continents, in particular the data on Chinese populations, populations and on confirmed cases of coronavirus and death, we arrive at estimation results at 2,382,039 people are the number of confirmed coronavirus cases and at 183,659 the number of deaths in China is 39.92 times the number that has been officially reported. This result of 39.92 times seems more than that of US intelligence estimated at 40 times (Bloomberg, 2020).

Yet in economic theory, it is clear that imperfect, asymmetric, incomplete and questionable information is generally a major cause of market failure, likely to cause serious dysfunctions of the economy but especially of global scope if it could reach this magnitude.

With 4,000 cases confirmed at the end of January 2020 for a population of nearly 1.417 billion people, including 10.7 million in the city of Wuhan, the epicenter of the epidemic, China could not infect the whole world in less than 40 days. Unless the disease was already widely present in other countries and the WHO ignored it.

And if these estimates tend towards reality, China could experience a probable decline in growth (GDP) of around 12% in the coming years, with job losses of up to 360 million, i.e. an early unemployment of 24% of population.

## CONCLUSIONS

The bankruptcy of the global economy would not only date from the 2019-2020 coronavirus era, but long before. It would have started long before, but only really gained momentum in 2019-2020 with the outbreak of covid-19. A pandemic that simply made it worse.

The present study has shown imperfections in the functioning of markets not yet highlighted in the economic analysis. One could cite, among others, the failure to take into account the dependence of output markets on input markets, the ignorance of the contribution of economic interference to the efficiency of markets, whether physical or virtual, " ignorance of the scale of virtual transactions which are sometimes invisible and difficult to capture in national statistics.

The four conditions of competition remain essential but not sufficient to obtain collective market efficiency. To achieve collectively effective competition, input markets should be made to compete and interfere under the same conditions as output markets. This will allow the markets to become true artificial intelligences, self-governing and self-regulating in the event of failures.

The market has never been free as we always wanted it to be, it is frequently subject to manipulation by authorities and business elites, yet it needs to be to be more efficient. A free world market would not have allowed 4 out of 202 countries to obtain and control more than half of the world's wealth. A free global market would not have allowed China to generate more than a third of the world's economic growth in 2018 and to gain a certain natural monopoly in the world economy.

The bankruptcy of the world economy would also come from the concentration of the world wealth in the hands of these four countries which find themselves nowadays very indebted. This is why any problem that arises in one of these countries resonates very strongly, with very considerable expansionist effects in the world according to the theory of economic interference by the massive and rapid propagation effect of flows.

The development of ICTs should make it possible to move towards a digital economy with the advantages of limiting travel and physical contact, producing a competitive economy based on trust and maximizing collective well-being. Unfortunately, the vast majority of the world economy has always remained a manually physical economy and always in transition to digital.

A predominantly digital global economy built on trust would have limited the transmission and spread of the coronavirus around the world. Also, the economic sovereignty of each country would have led to the same results as permanent dependence on others.

America, Europe and Asia have been the continents most affected by the coronavirus because the Chinese market is in strong economic interference with all the major markets of the countries of these three continents.

The poverty and the low weight of the African continent in international trade would have played in its favor, thus limiting the extent of the transmission and the spread of the disease in its territories.

American and European countries remain China's primary partners in international trade. The economic interference of the Chinese market with the markets of these European and American countries is very strong and permanent, thus generating the movement of many Chinese, European and American businessmen between China, Europe and America.

Thus, considering in these conditions the data from China and the countries of these two continents, in particular the data on the Chinese population, and on the confirmed cases of coronavirus and of death, as of May 9, 2020, we arrive at Estimated results of 2,382,039 people the number of confirmed cases of coronavirus and 183,659 the number of deaths in China or 39.92 times the number that has been officially reported. This result of 39.92 times seems more than that of American intelligence estimated at 40 times.

Yet in economic theory, it is clear that imperfect, asymmetric, incomplete and questionable information is generally a major cause of market failure, likely to cause serious dysfunctions of the economy but especially of global scope if it could reach this magnitude.

With 4,000 cases confirmed at the end of January 2020 for a population of nearly 1.417 billion people, including 10.7 million in the city of Wuhan, the epicenter of the epidemic, China could not infect the whole world in less than 40 days. Unless the disease was already widely present in other countries and the WHO ignored it.

And if these estimates tend towards reality, China could experience a probable decline in growth (GDP) of around 12% in the coming years, with job losses of up to 360 million, i.e. an early unemployment of 24% of population.

The end of the coronavirus will not mark the end of the bankruptcy of the world economy. It could continue by taking other forms without completely dissipating if we do not find real solutions to eliminate the real causes.

## Références bibliographiques

- Azevêdo M. (2020), « Forte chute attendue du commerce avec une économie mondiale bouleversée par la pandémie de COVID 19 » OMC, 2020.
- Banque Nationale du Canada, Marchés Financiers (2020), Le mensuel boursier, Economie et Stratégie, BNC.
- Broer J. (2013) Innovation and technology.
- Chang Yong R. (2020), « Pandémie de COVID-19 : plus faible croissance dans la région Asie-Pacifique depuis les années 1960 » FMI, 2020.
- Cyert, R. M. Hedrick, C. L. (1972) "Theory of the firm: past, present, and future", Journal of economic literature, vol 10, pp. 398-412.

- Frank, H. R. (1994), *Microeconomics and behavior*. McGraw Hill International Edition. New York.
- Felsenthal M. Imtiaz H. (2019), *Perspectives Economique Mondiales*, juin 2019, Banque Mondiale
- Ghanem H. (2020), *For Sub-Saharan Africa, Coronavirus Crisis Calls for Policies for Greater Resilience*, *Africa'S Pulse World Bank* 2020.
- Greyerz E. V. (2018), « L'effondrement de l'économie mondiale approche » MAM &GS.
- Keynes J. M. (1936), «The he General Theory of Employment, Interest and Money », *Mecanism, Quarterly Journal of Economics* 84: 488-500.
- Mankiw, N. G. (1998), *Principes de l'Economie*. Economica. Paris.
- Modibo, M. M. (2020), « COVID-19 : L'économie mondiale sérieusement atteinte », *Unité de Partenariat Public-Privé, Présidence Mali*, 2020
- Ouédraogo, F. (2018), *Analyse des déterminants majeurs de l'accroissement de la production du riz au Burkina Faso*, *Revue Ouest-Africaine de Sciences Economiques et de gestion*, Volume 11, N°2 pp. 171-188.
- Ouédraogo M. I. and al (2020), « Analyse économique des effets du COVID 19 au Burkina Fao, *FORGE Afrique* 2020
- OIT, (2020), *Le COVID-19 et le monde du travail*. Troisième édition Estimations actualisées et analyses.
- Pangestu, M. E (2020), *La faim au milieu de l'abondance : comment réduire l'impact de la pandémie de COVID-19 sur les personnes les plus vulnérables du monde*, Banque Mondiale, 2020.
- Pangestu M.E. (2020), *FAO « La faim au milieu de l'abondance : comment réduire l'impact de la pandémie de COVID-19 sur les personnes les plus vulnérables du monde »*, *FAO*, 2020
- Parkin, M.2003. *Economics*. 6e édition. Addison Wesley. Boston.
- Resort Condominiums International (RCI, 2010), *Les entreprises étrangères son bienvenues en Chine*.
- Reeves H. (2014), « Sécurité et profit ne font pas bon ménage », *Milieus naturels, aires protégées*
- Simon, H. (1962), "The Architecture of Complexity." *Proceedings of the American Philosophical Society* 106(6): 467-482.
- Touré, A. (2020) « La pandémie de Covid-19 (coronavirus) entraîne l'Afrique subsaharien vers sa première récession depuis 25 ans », *Banque Mondiale* 2020.
- Quesnay F. (1758), « *Tableau économique* », 1758, 5p.
- UNCTAD (2020), *The COVID 19 Crisis: Accentuating the need to bridge digital device* UNCTAD Report, 2020.
- Vitor G. and al. (2020) « Les mesures budgétaires à prendre pour limiter les dégâts de la COVID-19 » *FMI*, 2020.