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The Political Response to the COVID-19 Crisis in Italy: A First Assessment for the National Food System

Francesca Curcio *  and Davide Marino 

Department of Biosciences and Territory, University of Molise, 86100 Campobasso, Italy; dmarino@unimol.it

* Correspondence: f.curcio@studenti.unimol.it

Abstract: The objective of this paper is to explore the policies that have been implemented and planned in relation to the impacts that the COVID-19 health crisis has had on the Italian food system. This is an evaluation exercise useful to understand what the directions imprinted on the food system will be in relation to some frameworks of particular importance at the international level, such as the 2030 Agenda, the Farm to Fork Strategy, the Biodiversity Strategy, the UN Food Summit, and the agroecological perspective. The article is divided into multiple sections. In paragraph 1.1 and 1.2, the shocks generated by COVID-19 in the global context and in the Italian national context are examined. In both, attention is drawn to changes in GDP, employment, poverty, and the food system. In paragraph 2, the methodological approach, based on the DPSIR model, is explained, as well as the materials used for the drafting of the work. From paragraph 3.1 to 3.4, all of the components (Driving Forces, Pressures, States, Impacts) of the DPSIR model are analyzed. In paragraph 3.5, attention is focused on all policy responses implemented during COVID-19, both on the Italian and European side. In paragraph 4, a detailed analysis of the Italian responses is made in order to fully understand the degree of influence on the Italian economy and food system. The analysis carried out, therefore, highlights the socioeconomic threats faced by the Italian government and the main measures adopted to counter them. Through a critical analysis of policies, it was possible to identify their criticalities and propose possible integrations, starting from the concept of “syndemia”. This concept was introduced in the 1990s by Merrill Singer, and in this paper, it plays an important role because it takes into account the negative effects of the pandemic at the economic, health, and social levels and the importance of the sustainability of the food chain.

Keywords: COVID-19; food system; assessment; resilience



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1. Introduction: COVID-19 Impacts on Food and Agricultural System

The year 2020 will probably constitute a watershed in human history. The COVID-19 pandemic has highlighted the social, health, and economic fragility of the globalized planet and has posed serious questions about the current model of development, paving the way for political, but also scientific, debate on how to plan the future of humanity in relation to the risk factors generated by COVID-19 [1,2]. Part of these questions also come from the evidence of the link between the pandemic crisis and the more general environmental and climate crisis, without forgetting the recent economic and financial crisis. There is a close relationship between COVID-19 and globalized food systems. For example, as we will discuss in more detail later, the health impact of COVID-19 is also linked to the health conditions induced by food consumption, but the same spread of the virus could be a case of zoonosis related to the growing demand for commodities and, in particular, meat, favored by the drastic reduction of biodiversity [3] correlated to the expansion of the global system of intensive production. This paper aims to trace, analyze, and evaluate the policy responses adopted during the pandemic period by Italy and the EU, and investigate their degree of influence on the food system.

1.1. Pandemic Shock at Global Level (Economy and Agri-Food)

As recognized by the World Bank, the pandemic has had significant impacts on the global economy due to a downsizing of personal interaction. Economic and political insecurity has held back investment; school suspension has further reduced the accumulation of human capital, essential for the creation of personal, social, and economic wellbeing, and the state of alarmism and the feasibility of global value chains have weighed on tourism and international trade [4]. Faced with a crisis of such magnitude, the International Monetary Fund (IMF) associates this particular historical moment with an increase in economic and social inequalities [5]. The International Monetary Fund, in the update of its World Economic Outlook (WEO) report, has modified its estimates for the world economy with respect to both 2020 and 2021. According to the estimates, the downturn in the global economy in 2020 will stop at 3.5% (0.9% less than the assumptions made in October of −4.4%) and will return to growth in 2021 of 5.5% (0.3% more than the assumptions made in October) before stopping in 2022 at 4.2%. [6] (Figure 1).

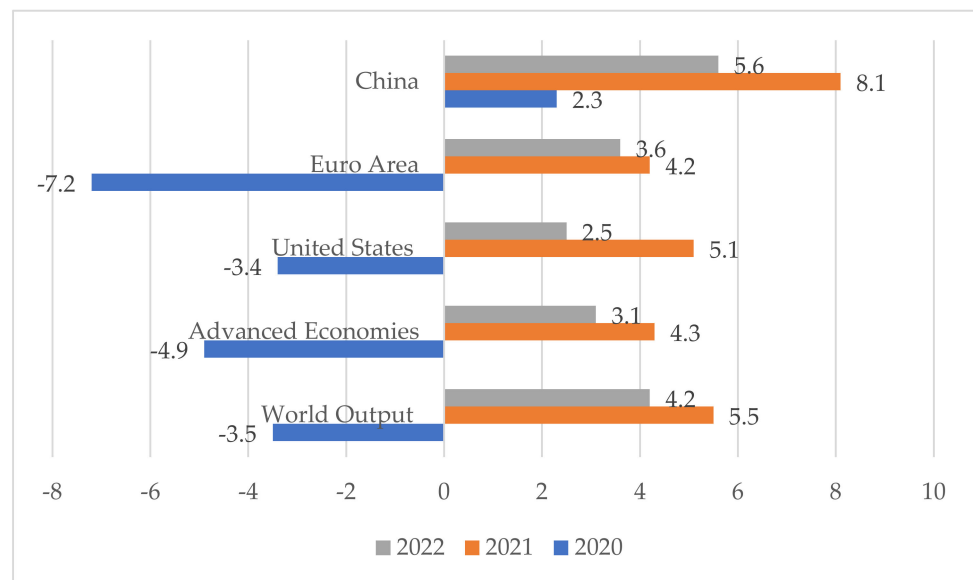


Figure 1. Real GDP, annual percent change. Source: latest World Economic Outlook Growth projections. Source: IMF, World Economic Outlook Update, January 2021.

The global economy, grappling with the Omicron variant, came into 2022 in a weakened condition with higher inflation, relative to projected estimates, dictated by rising energy prices and supply disruptions. In addition, continued variant deployment could lead toward new economic disruptions, as reported in the January 2022 WEO [7].

The International Labor Organization estimates an 8.3% decline in labor income globally by 2020 from the previous year, recording a major loss in lower-middle-income countries of 12.3%, but with similar losses in low-, upper-middle-, and high-income countries [8].

The decrease in labor income represents a fundamental indicator, since it could cause new conditions of poverty; this factor would lead households to limit consumption, in turn impacting on aggregate demand and accentuating the risk of greater disparity in the future. What stands out in the analyses conducted by the international institutes is that COVID-19 has affected countries and sectors differently, affecting employment and incomes as well as the various socioeconomic groups. However, the main victims of this health emergency are young people and women, who face challenges due, in part, to informal/precarious working conditions. A global ILO survey reports that among the sample examined, more than one in six young people have stopped working since the start of the COVID19 crisis. For young people who continued to work, working hours fell by 23%. Furthermore, about half of young students reported a possible delay in completing their studies, while 10% expected not to be able to complete them. Based on a standard scale that measures mental

wellbeing, more than half of the young people interviewed reported being vulnerable to anxiety or depression since the start of the pandemic [9].

Thus, this crisis will push 90 million people into extreme poverty between 2020 and 2021, hitting the lowest-skilled class of workers and industries where physical presence is required, including [9] manufacturing, wholesale, and retail trade. The sector in which the greatest reduction in employment was evident (by 17%) remains that of accommodation and food services (Figure 2).

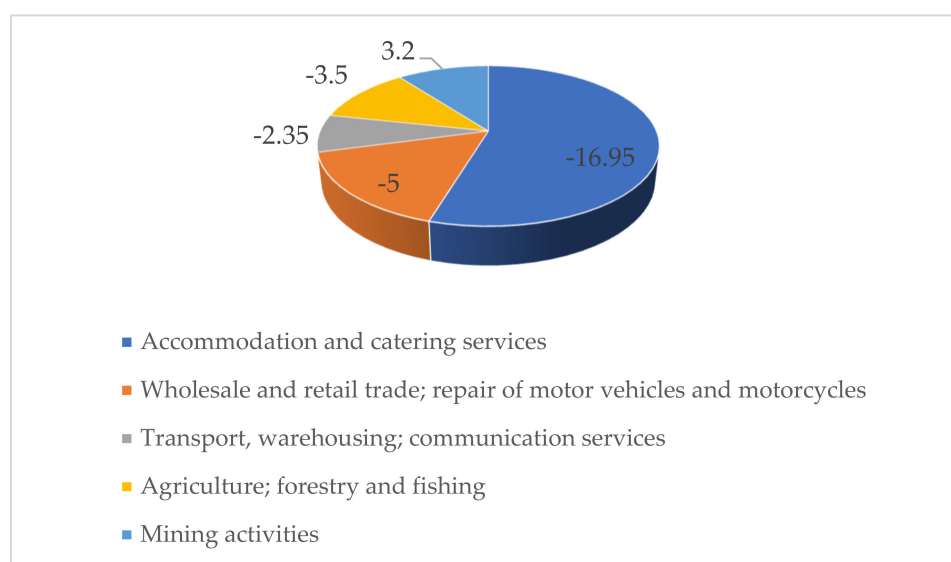


Figure 2. Growth rates in employment at sector level in the second and third quarters of 2020 (on an annual basis) compared to the risk forecasts of the second edition. Source: ILO. Nota OIL COVID-19 e il mondo del lavoro, seconda edizione, 7 April 2020.

In its “World Employment and Social Outlook—Trends 2022” report, the International Labour Organization states that global unemployment is expected to affect about 207 million people, exceeding 2019 levels by 21 million. The employment recovery in low- and middle-income countries shows lower figures than in wealthier countries. The difference is mainly due to vaccination rates and tax protections. This will affect developing countries the most, where inequality, working conditions, and inefficient social protection systems already weighed heavily before the pandemic [10].

The socioeconomic effects of the health emergency have spilled over and will also spill over onto the state of food and nutritional security, amplifying the difficulties already underway [11]. It should be pointed out that the two elements are closely interconnected, since the onset of food insecurity can generate new conditions of malnutrition. According to the FAO [12], COVID-19 could lead to increased food insecurity due to restrictions imposed to curb the pandemic and the purchase of low-priced, durable products that often lack certain nutritional properties [13]. Therefore, knowing that the globalization of the food system involves the dependence of all countries on foreign markets and food imports, it is easy to understand how COVID-19 has highlighted the limits and unsustainability of this process, shifting the focus towards local food systems [14]. This is important when one considers that the stressors triggered by COVID-19 have caused further deterioration of livelihoods and resource depletion. This makes it clear that the wellbeing of humanity is linked to the wellbeing of our ecosystems, which have been severely damaged by the productivist approach of the dominant food system, i.e., the “global food system”. The US Centers for Disease Control and Prevention argue that the growing diseases that contaminate humans come from animals. The contamination of habitats by chemical agents, climate change, and the increasing deterioration of the environment contribute

to promoting risk, but through the consumption of a sustainable diet, it is possible to safeguard our planet and protect future generations [15].

1.2. Pandemic Shock at Italian Level (Economy and Agri-Food)

At the Italian national level, the economic crisis resulting from COVID-19 came forward at a stage when economic growth was already weak. According to ISTAT, the GDP in the first quarter of 2020 decreased by 5.3% (Table 1) compared to the previous quarter, and by 5.4% compared to the first quarter of 2019 [16,17].

Table 1. Conjunctural indicators.

	Italy	Euro Zone	Period
GDP	−5.3	−3.6	T1 2020
Industrial Production	−19.1	−17.1	April 2020
Producer prices—internal market	−0.3	−0.6	May 2020
Consumer prices (IPCA) *	−0.4	0.3	June 2020
Unemployment rate	7.8	7.4	May 2020
Consumer confidence **	6.3	4.1	June 2020
Economic Sentiment Indicator **	8.2	8.2	June 2020

* Trend variations; ** Differences with the previous month—Source: Istat (2020). Nota Mensile Sull’andamneto Dell’economia Italiana [16].

In the fourth quarter of 2021, the Italian GDP registered a further increase (up 0.6%) with a more modest scope than in previous quarters (up 2.6% in the third quarter and 2.7% in the second quarter), reflecting an increase in the added value of industry and services. In 2021, the GDP adjusted for calendar effects registered an increase of 6.5% compared with the previous year, significantly higher than the average growth in the euro area (up 5.2%) [18].

Closely linked to the GDP trend is employment, which, in the second quarter of 2020, underwent a decrease of 2.9% in the euro area and 3.6% in Italy, a drop of 841 thousand units in one year. The employment rate reached 57.5% with a change of 1.9% compared to the second quarter of the previous year (Table 2) [19]. In December, the employment rate returned to late-2019 levels (59.0%) and the unemployment rate declined (down to 9.0% from 9.7% in December 2019) amid an increase in the inactivity rate (35.1% from 34.5%).

Table 2. Employment rate in Italy, II quarter 2020.

	Male and Female Employment Rate (%)	Percentage Change II Quarter 2019 Males and Females
Total	57.5	−1.9
North	66.2	−2
Center	62.4	−1.7
South	43.4	−2

Source: Istat (2020). Statistiche flash II trimestre 2020. Il mercato del lavoro. September 2020 [19].

In turn, this phenomenon calls into question another aspect—that of the distribution of wealth, also influenced by the pandemic. The Bank of Italy study entitled “The impact of the pandemic on labor income: the Italian case” confirms that social inequality, as measured by the Gini index on labor income, rose to 41.1 in the second quarter of 2020 [20]. In Italy in the last 10 years, there has been an increase in both absolute and relative poverty, as a result of the economic and financial crisis, which COVID has further accentuated. According to CENSIS [21], the lockdown caused a reduction in income for 50.8% of Italians (Table 3); in particular, 15% suffered a reduction of more than 50% of their family income, while for a further 18%, the drop in income was between 25% and 50%. Moreover, the distribution of the data is not uniform, and for traditionally more fragile social groups such as women and young people, the impact was greater.

Table 3. Consequences on family income during the COVID-19 emergency, 2020 (val.%).

As a Result of the COVID-19 Emergency and Also Including Any Support Tools, How Has the Income of Your Family Changed in the Last Two Months? (*)	Total	18–34 Years	Women
Reduction greater than 50%	14.9	21.2	16.8
Reduction between 25% and 50%	17.9	19.5	16.5
Reduction of less than 25%	18.0	19.4	15.7
Unchanged	48	37.7	49.6
Increased	1.2	2.2	1.3
Total	100	100	100

(*): survey at the end of April and early May 2020. Source: CENCIS elaboration on Bank of Italy data [21].

According to Istat [22], due to the restrictive measures, absolute poverty affected more than two million families, one million more than in the year 2019. In the north of the country, there were 218,000 more families in absolute poverty than in 2019; in the center, 128,000 more; and in the south, 186,000 more. This increase, in turn, generated a decrease in household consumption expenditure throughout the country, in which only housing and food expenses remained stable. In the north, there was a decrease of -10.0% , in the center, -8.9% , and in the south, -7.3% .

Increased poverty has led to an increase in demand for food aid, triggering a major food emergency [23]. Faced with this emergency, the government has provided economic support through municipalities, many of which have supplemented public aid with donations from private individuals. In fact, in addition to the intervention of the administrations, there have been many vital solidarity initiatives carried out by associations, humanitarian organizations, and spontaneous groups ready to offer hope and reassurance to those in need. The Caritas Report of 2020 entitled “The antibodies of solidarity” shows an increase in the number of people—about 450,000—being supported by Caritas during the pandemic and who are defined as “new poor”, or people who have found themselves in a position to ask for help for the first time [23]. At the same time, ActionAid also highlighted an increase in the number of food-insecure households with serious repercussions, especially for women and children [24]. In this context, the Italian agri-food system has been affected by the phenomena of fragility and at the same time of resilience, and the agri-food companies have shown great responsibility, trying to face the situation both internally and externally. Despite this, the agri-food sector also recorded significant losses due to the closure of the HORECA channel and the block on exports. [25]. According to Nomisma [26], the damage that the restrictive measures have brought to the agri-food sector is evident. For the country system, the agri-food supply chain is a fundamental sector if we consider that the added value generated by agriculture and the food industry is around EUR 59 billion. Yet, despite the resilience of the sector, restrictive measures have produced a 64% drop in out-of-home consumption in the second quarter of 2020 and a drop in agri-food exports for certain supply chains (4.4% for the confectionery supply chain and 3.3% for the wine supply chain). On the other hand, other products registered increases in exports, including pasta (+23.4%) and tomato purée (+10.0%).

2. Materials and Methods

In order to respond to the objective of the paper, i.e., the evaluation of the degree of response of national policies to the impact of COVID-19, the DPSIR (Driving Forces, Pressures, States, Impacts, Responses) framework was assumed as the model of analysis. The model makes it possible to correlate the political responses (Responses) to the various segments into which it is possible to break down the analysis of a given phenomenon—in this case, the impact of COVID-19 on the food system—according to a cause–effect logic. The DPSIR model derives from a variation, introduced by the European Environment Agency (EEA) in 1995, to the Pressure–State–Response model [27] previously proposed by the OECD [28]. Since then, this model has been used both in science and by several international organizations as a logical framework for the analysis and understanding of the

articulation of a large number of environmental phenomena and their connections with the socioeconomic system, both upstream, to identify the driving forces, and downstream, to study the responses or policies implemented [29–32]. The DPSIR model has, thus, become an approach for analyzing sustainability initiatives in order to overcome the obstacles that prevent them from being achieved. The structure of this model is made up of five elements linked together by causal relationships:

D—Driving Forces: anthropogenic and natural actions that give rise to pressures on the environment;

P—Pressures: pressures exerted on the environment as a function of the determinants;

S—States: physical, chemical, and biological qualities of the environment and environmental resources that can be challenged by pressures and that must be protected and defended;

I—Impacts: alterations to ecosystems, human health, and social and economic performance;

R—Response: government actions taken to cope with the pressures [33,34].

Another field of application is the evaluation—ex ante—of the effects of policies, plans, and programs, especially in the economic and development field, to understand how the implementation of economic and territorial programs may impact on the environment and propose possible alternatives.

In this paper, the DPSIR model was used to analyze the impacts of COVID-19 on our food system by relating, through an appropriate indicator system [26], the relationships between all environmental and human components [35,36]. To this end, we collected the main information sources, in the form of statistical data, available at national and international level, from research institutes and government agencies (Istat, CREA, ISMEA, FAO, ILO, WHO, IFM), and scientific literature on the impact of COVID-19 on the agri-food sector, as well as policy documents at the European and national level. The material collected was useful to systematize the framework and understand the impact that COVID-19 has generated on the food system and on the environmental, economic, and social aspects related to it [37].

In the following paragraphs, all of the components of the DPSIR model will be detailed. Starting from the analysis of the scientific literature, we analyze the Driving Forces, i.e., the primary generative causes related to the outbreak of the pandemic; the variables that directly caused the socioeconomic problems (Pressures); illustrate the state of the art regarding the epidemiological emergency (State), and describe the effects of the changes of state (Impact) on human health, on the environment, and on the economy.

3. Results

This section presents the results relating to the impact of COVID-19 on the Italian food system through a detailed analysis of the components of the DPSIR model.

3.1. Driving Forces: Pandemic and Syndemic

Recent studies suggest that COVID-19 is not a neutral disease, as the groups most at risk are those who are most vulnerable, i.e., people living in poverty, with low income and in fragile areas and with greater difficulty in accessing essential services such as employment, sanitation, and nutrition [38]. As highlighted in the preceding paragraphs, COVID-19 exacerbated pre-existing race and socioeconomic inequalities, so policy responses play a critical role in mitigating health disparities [39]. The pandemic has placed all countries in front of new challenges related to their food systems, traceable to all phases of the production process. In this sense, it becomes increasingly important to understand how food is produced, processed, transported, redistributed, consumed, and disposed of within territories, and whether these processes are centered on the concept of sustainability. Considering that the risk factors related to COVID-19 intersect with social, environmental, and economic factors, Richard Horton, Director of the scientific journal *The Lancet*, argues that the term “pandemic” does not contribute efficiently to the description of reality, because COVID-19 has the characteristics of a syndemic [40]. This term is intended to indicate a process, the result of the interaction of several diseases, both communicable and not,

that generates a set of problems (social, economic, environmental, health) to the detriment of the weaker social classes. Silvia Ribeiro argues that the spread of epidemics has been triggered by three interrelated causes: (a) the industrial farming of chickens, turkeys, cows, and pigs, which are the main source of the multiplication, mutation, and spread of viruses; (b) industrial agriculture, since 75% of agricultural land around the globe is used for grazing; and (c) the unstoppable expansion of urban areas [41]. According to the WWF, “many pandemics of recent decades have their origin in the markets of Asian or African metropolises where there is illegal or uncontrolled trade in live wild animals, monkeys, bats, snake meat, pangolin scales, and many other reptiles, mammals and birds. This creates dangerous opportunities for contact between humans and the diseases of these organisms, offering the side to the development of old and new zoonoses, or infectious diseases that can be transmitted from animals to humans” [42]. For these reasons, it is stated that the construction of responses to cope with novel viruses should follow systemic logic, aimed at strengthening the health, economic, social, and cultural systems. The peculiarity of the conceptual model of the syndemic lies precisely in its systemic and ecological dimension [40]. In fact, COVID-19 has realized the predictions repeatedly highlighted by scientific studies, highlighting the risks produced by global food systems. The practices of industrial agriculture and intensive livestock production have produced, over time, the loss of biodiversity and the increase of greenhouse gases and, above all, they have created favorable conditions for the spread of viruses and diseases resulting from the increasing interaction between man and nature.

3.2. Pressures on National Agri-Food System

In order to limit the contagions, the Italian government has launched measures to contrast and contain the epidemiological emergency. The Decree of 9 March 2020 established the beginning of the first phase of the pandemic. With the #IoRestoaCasa Decree, the activities of food services were suspended, generating negative impacts for bars, restaurants, pubs, and bakeries. Measures to stem the COVID-19 emergency and restrictions on territorial movement also affected the recruitment of agricultural labor by seasonal workers from EU and non-EU countries. One of the main obstacles was the 14-day quarantine requirement to which the workers had to be subjected, during which they would have to bear the costs of food and lodging without receiving any income. Similarly, the limitations on movement within Italy made it complicated for all workers, mostly foreigners and without residence permits, to move around the territory and organize themselves according to the needs of the agricultural sector. Once again, the health emergency has highlighted a further criticality of Italian agriculture given by the share of irregular work that supports this sector, making the weakest more and more invisible [43].

On 4 May 2020, thanks to the decrease in contagions, the beginning of Phase II was officially declared with a gradual easing of restrictive measures. However, one year later, nothing had changed with respect to the agri-food sector, which once again found itself facing the problem of agricultural labor shortages and disruption of food services without having solutions at hand. The closing of the borders represented a significant obstacle for agricultural companies ready to harvest vegetables and strawberries, since 32% of the workers employed in the Italian countryside are foreigners.

3.3. State of the Agri-Food Sector

Against this backdrop, the consequences were evident on both the demand and supply sides. Demand was influenced by the reduction in working hours and income and the propensity to save, producing a decrease in consumption for certain categories of durable products [44]. In addition, there has been a change in demand by Italians in terms of food purchases and expenditure, dictated by a purely domestic lifestyle, which has transformed eating habits. Supply, on the other hand, has been conditioned by the interruption of global chains, resulting in a decrease in production [45]. During the second month of lockdown, the following attitudes were noted [46]:

- Boom in home deliveries (+160%), whose growth has been hampered by an inability to meet high demand;
- Resumption of proximity stores with the obligation to adapt to the regulations for home delivery;
- Substantial changes in consumer preferences, from the purchase of products to store for fear of a possible supply crisis, to products to cook such as milk, eggs, oil, and flour. Food becomes an opportunity for dialogue, sharing, and pleasure for families;
- 15% growth on an annual basis in wine purchases compared to the first phase of closure, in which the wine sector had been one of the most compromised.

Therefore, in the first four weeks of COVID-19, the state of anxiety and panic that dwelled in each individual generated a trend towards finding durable and long-life products (pasta, rice, tomato purée), leading to a collapse of fresh products, which were replaced with frozen foods. In addition, due to the health emergency, there was an increase in sales for supermarkets (+23%) and discount stores (+20%) and a dramatic increase in online spending [44]. The increase in retail sales partly offset the losses deriving from the closure of the HORECA channel in March and April, and then gave way to a general recovery dictated by an easing of measures following a decrease in contagions as of June 2020 [45].

In terms of production chains, the categories most affected by the drop in imports were those of vegetables, raw coffee, forestry, and fishing, and on the export side, meat, roasted coffee, confectionery, and wine. Nevertheless, this trend was offset by an increase in exports of other products such as pasta, oil, and canned tomatoes (Tables 4 and 5) [43]. In this regard, the CREA report “Foreign trade in agricultural and food products 2019” analyzed the influence of restrictive measures on agri-food trade. The report highlights a 4.6% drop in imports and a 2% increase in exports in the first half of 2020. The reduction in imports has specifically affected certain sectors such as forestry, fishing, and livestock with a contraction of over 30%. However, the negative trends in these sectors were offset by growth of over 6% in cereal imports. As for the food industry, significant reductions were noted for the following import sectors in the second quarter of 2020: fresh and frozen meat (−21.2%), dairy products (−12.6%), and fish products (−25.6%) [43].

Table 4. Quarterly trend of Italian agri-food imports by sector, 1st half of 2020.

Total by Sector	Value (Millions of Euros)	Weight %	Value			Quantity		
			I Quart	II Quart	I Sem	I Quart	II Quart	I Sem
Total primary sector	7354.4	34.9	0.0	−6.8	−3.4	−6.1	1.2	−2.5
Total food industry	12,605.2	59.8	2.8	−14.4	−5.9	−5.4	−8.4	−6.9
Total drinks	960.9	4.6	42.9	−21.2	6.9	68.0	−19.6	16.3
Total agri-food	21,073.1	100.0	3.2	−12.1	−4.6	−3.9	−3.6	−3.7

Source: CREA [43].

Table 5. Quarterly trend of Italian agri-food exports by sector, 1st half of 2020.

Total by Sector	Value (Millions of Euros)	Weight %	Value			Quantity		
			I Quart	II Quart	I Sem	I Quart	II Quart	I Sem
Total primary sector	3474.5	16.1	2.2	0.3	1.3	−6.4	−8.5	−7.4
Total food industry	13,760.6	63.7	10.4	−0.3	5.0	8.5	6.1	7.3
Total drinks	4223.3	19.6	6.0	−14.6	−5.0	7.3	−11.9	−3.0
Total agri-food	21,598.0	100.0	8.0	−3.6	2.2	5.2	−0.7	2.2

Source: CREA 2020 [43].

The measures to counter COVID-19 were most evident on the blockade of restaurant services, overwhelming 285,315 businesses and 1,221,617 employees, with a collapse of 80% of the family consumption destined for catering. For the economy of our country, it was a hard blow; in 2019, household spending on non-domestic consumption was around EUR 86 billion. The discomfort experienced by the restaurant industry has generated, in turn,

undesirable effects on Italian agribusiness due to the interruption of food and beverage orders to agricultural companies and industries, affecting several sectors including fish, meat, wine, beer, cheese and cold cuts, fruit, and vegetables [47].

3.4. Impacts: Effects of COVID-19 on Food System and Food Security

The effects generated by COVID-19 on the food supply chain and intended to be highlighted in this paper are:

- An increase in absolute and relative poverty: the pandemic has intensified economic inequalities due to the reduction in income of Italian families;
- Increased food poverty: economic inequalities have translated into difficulties in accessing basic necessities;
- Structural changes in consumption styles: the change in consumption patterns has led to a preference for fresh products to be cooked rather than stored;
- Structural changes in the tourism supply chain: the reorganization of services offered and implementation of new products capable of conveying security to customers;
- Restructuring of supply chains: the reorganization of food systems on a local scale, giving priority to the concept of sustainability and building networks between producers and consumers to increase awareness of the transversality of food.

Firstly, the negative impacts have been on the economic side, putting small producers, processors, and distributors in crisis [48]. In turn, the physical distancing envisaged by the regulations for the mitigation of contagions has made it difficult for workers to organize themselves to carry out the activities of the production processes, affecting the income and consumption of households, respectively. In fact, the gross income of households during the first quarter of 2020 fell by 1.6%, generating a 6.4% drop in final consumption expenditure. This climate of uncertainty led to a 12.5% increase in the propensity of households to save compared with the previous quarter, and a 1.7% decrease in household purchasing power (Table 6) [49].

Table 6. Quarterly trend of Italian agri-food exports by sector, 1st half of 2020.

	First Quarter 2020	Percentage Changes Conjunctural	Percentage Changes Tendential
		I Quarter 2020 IV Quarter 2019	I Quarter 2020 I Quarter 2019
Gross disposable income	283.843	−1.6	−1.1
Purchasing power	275.756	−1.7	−1.5
Final consumption expenditure	249.974	−6.4	−6
Gross fixed investments	15.216	−8.6	−9.2

Source: ISTAT, 2020 [49].

Secondly, the pandemic has placed vulnerable people in conditions of food insecurity and in many cities, thanks to solidarity actions, it has been possible to mitigate this problem [50]. In this regard, Italia non profit carried out a mapping of all of the initiatives, from 18 March to 15 April 2020, launched by private citizens, businesses, foundations, and nonprofit organizations, tracing 801 initiatives by 619 donors [51]. Figure 3 summarizes the risks associated with the spread of the pandemic and the related restrictive measures, hinging them within the framework of the Sustainable Development Goals of the 2030 Agenda.

	Loss of income Increased poverty in all its dimensions
	Possible disturbances in agricultural and food production and distribution.
	Devastating effect on health. Collapsing health systems and repercussions for people who need medical treatment for other diseases as well
	Closed schools and universities. Increase in digital study modes. Distance learning can be less effective and not accessible for everyone
	Possible increase in levels of violence against women. Greater burden on women, in the management of work and family care
	Problems inherent to the water system. Hygiene is one of the most important COVID-19 prevention measures
	Impact of shocks on global energy markets. A slowdown in demand related to the fall in production and repercussions on energy intensity. Risk for investments in the energy transition. Risk of increasing energy poverty
	Reduction of GDP and labor productivity. Impact on the labor market. Increase in digital working mode
	Fall of industrial production, with possible more substantial losses for the SME. Industrial conversion in view of the new needs. Relevance of innovation and research to offer solutions. Transport contraction. Reductions in carbon emissions
	Increase in inequality. Issues relating to migrants and refugees
	High population density entails greater likelihood of risk exposure. More difficult living and hygienic conditions in homes with structural problems. Possible temporary reduction of air pollution
	Decrease in the pressures of the economic system on the environment (material consumption, waste, etc.). Collapse of the tourism sector.
	Measurement of the hazards regarding the pandemic. Temporary decrease in atmospheric pollution emissions due to lower production and reduced mobility
	Investing in the protection of ecosystems and biodiversity
	Investing in the protection of ecosystems and biodiversity
	Increase in computer crimes. Infiltration of mafias and organized crime among the sectors most exposed to the economic crisis and in the sectors involved (drug trafficking and equipment). Situations in prisons
	Need to expand the instruments of economic-financial support of the countries most in need. Strong contraction of remittances from immigrants. Wider use of ICT and the Internet

Figure 3. SDGS and COVID-19: interactions. Source: adaptation from Istat 2020 [52].

3.5. Responses: Policy Choices in the Face of the Pandemic

In analyzing the responses, we focused not only on the specific—often emergency—policies put in place at the national and European level to deal with the acute period of the crisis, but also on those general policies that were not designed specifically for COVID-19, but that in light of the relationship between COVID-19 and the environmental and health crisis, may influence some of the drivers underlying the crisis itself (Table 7). As stated by European Commission Vice President Frans Timmermans, “the coronavirus crisis has demonstrated the vulnerability of all of us and the importance of restoring the balance between human activity and nature. The Biodiversity Strategy and the Producer-to-Consumer Strategy are at the heart of the Green Deal initiative and aim at a new and better balance between nature, food systems, and biodiversity: protecting people’s health and well-being while strengthening the EU’s competitiveness and resilience. These strategies are a key part of the major transition we are undertaking” [53].

Table 7. Summary of measures as responses to COVID-19 pandemic, at European and national levels.

Exceptional Measures for the Agri-Food Sector		General Measures as a Response to COVID-19		Wider and Earlier Measures Affecting Drivers
European Policies	National Policies	European Policies	National Policies	European Policies
<ul style="list-style-type: none"> Measures aimed at the economic support of farmers and rural areas through loans to cover operating costs for a maximum budget of EUR 200,000 at low interest rates Remaining funds for rural development to support farmers and small and medium-sized enterprises in the agri-food sector State aid for farmers and food-processing businesses and to support the market Aid for private storage for certain categories of products including dairy and meat, and providing flexibility for the implementation of market support programs Measures to encourage greater flexibility in the requirements of the CAP, by extending the deadline for payment applications and reducing controls on agricultural holdings 	<p>Budget Law 2020</p> <ul style="list-style-type: none"> Increase of the National Fund for the distribution of food products for the less well-off social groups Introduction of a tax on the consumption of sugary drinks (sugar tax) in order to combat the problems of obesity and associated diseases Tax on the consumption of plastic products (plastic tax) and numerous interventions aimed at promoting the Italian Green new deal <p>Budget Law 2021</p> <ul style="list-style-type: none"> Establishment of a fund to increase the competitiveness of agricultural, fishing, and aquaculture sectors Establishment of a fund for the enhancement of the beekeeping, hemp, and nuts supply chain Food emergency institution to fight waste Contribution exemption and income tax exemption for young Farmers and agricultural enterprises Granting of zero-interest mortgages to support female-run agricultural enterprises Exemption from the first instalment of the tax on real estate for tourist accommodation companies, tour operators, travel, and entertainment agencies 10% reduction in VAT on takeaway and delivery 	<p>Next Generation EU</p> <ul style="list-style-type: none"> Support for modernization through research and innovation, carried forward with the Horizon Europe program Just Climate and Digital Transitions, through the Just Transition Fund and the Digital Europe Program Preparedness, recovery, and resilience, through the Recovery and Resilience Facility, rescEU, and a new health program, EU4Health Modernization of traditional policies, such as cohesion policy and the common agricultural policy, to maximize their contribution to the Union's priorities The fight against climate change, for which 30% of European funds will be reserved Protection of biodiversity and gender equality 	<p>“Cura Italia” Decree</p> <ul style="list-style-type: none"> Redundancy fund in derogation extended for the entire national territory, for all employees, of all production sectors Deferral of deadlines and suspension of tax and social security payments for all small businesses, professionals, and the self-employed <p>“Liquidity” Decree</p> <ul style="list-style-type: none"> Granting of guarantees in favor of banks and other financial institutions for new loans granted in any form to the companies themselves Measures to support exports, internationalization and business investments Strengthening of the Guarantee Fund for SMEs <p>“Relaunch” Decree</p> <ul style="list-style-type: none"> Liquidity and support for work and the economy through support measures for businesses with grants Extension of redundancy fund Tax credit for the adaptation of workplaces Suspension of payments of taxes and contributions Tax credits for commercial rents Tax concessions to companies with a turnover between EUR 0 and EUR 250 million NRRP-Mission 2 Green Revolution and Ecological Transition Waste recycling enhancement: +55% electrical, +85% paper, +65% plastics, +100% textiles Reduction of drinking water losses on water networks Development of research and support for the use of hydrogen in industry and transport 	<p>Farm to Fork</p> <ul style="list-style-type: none"> Help mitigate climate change and adapt to its impacts Support sustainable production practices aimed at protecting biodiversity Ensure food security, nutrition, and public health by ensuring that everyone has access to safe and nutritious food Preserve the affordability of food while generating more equitable economic returns, promoting the competitiveness of the EU supply sector and promoting fair trade <p>Biodiversity strategy</p> <ul style="list-style-type: none"> Creation of protected areas for at least 30% of the lands and seas in Europe Restoration of degraded ecosystems across the EU by 2030, through various actions including reducing the use of pesticides and planting 3 billion trees Unlocking EUR 20 billion annually for biodiversity through EU funds and national and private funding Global leadership through the example of an ambitious global framework for biodiversity

3.5.1. EU Policies

During the year 2020, the European Commission put in place several measures, directly and indirectly related to the food supply chain and its relationship with the environmental and social system. As a reference framework for this work, it is possible to identify the 2030 Agenda of the United Nations, and its 17 goals [54].

In this paragraph, the main policies implemented by the European Union will be recalled, distinguishing specific measures for COVID-19 and the agri-food sector from measures of a more general nature, thus linking back to the analysis made on the drivers of the crisis.

Exceptional Measures for the Agri-Food Sector

Faced with this emergency, the European Commission, in order to support the agri-food sector, adopted several measures. Janusz Wojciechowski, Commissioner for Agriculture, said that “the agri-food sector is increasingly affected by the consequences of the coronavirus crisis and that is why we decided to act quickly, in addition to the measures already taken since the beginning of the crisis” [55]. In fact, the European Commission is committed to ensuring the proper functioning of the supply chain, creating fast lanes for agri-food products and facilitating the mobility of seasonal workers in the agricultural sector. Subsequently, measures were introduced to provide economic support to farmers and rural areas through loans to cover operating costs for a maximum budget of EUR 200,000 at low interest rates, while it was decided to allocate the remaining funds for rural development to support farmers and small and medium-sized businesses in the agri-food sector. In addition, state aid for farmers and food processing companies and exceptional measures to support the market have been recognized, providing aid for private storage for certain categories of products including dairy and meat, and providing flexibility for the implementation of market support programs. In order to respond to the difficulties encountered by countries and farmers in meeting the CAP requirements, the European Commission introduced measures aimed at promoting greater flexibility by extending the deadline for payment applications and reducing controls on farms [56].

General Response Measures to COVID-19: The Next Generation EU Package

In order to intervene on the economic and social damage caused by the coronavirus pandemic, the European Commission, the European Parliament, and EU leaders have agreed on a recovery plan aimed at lifting Europe out of the crisis by making it more ecological, digital, and resilient as well as being in line with the European Green Deal. The novelty of the Next Generation EU consists in having considered the concept of sustainable development as the leading element of all social, economic, and environmental policies, as well as being consistent with the 2030 Agenda as an overall reference framework. The package, also known as the Recovery Fund, allocates EUR 750 billion: EUR 390 billion in grants and EUR 360 billion in loans, and is based on four pillars (Supporting Member States for investment and reforms; boosting the EU economy by stimulating private investment; drawing lessons from the crisis; and promoting the development of the European economy by means of the European Economic Recovery Plan) [57]. It is important to note that among the components of the European budget that have been strengthened thanks to the injection of NGEU resources are dedicated funds for the rural development of the Common Agricultural Policy. These, in fact, have seen an increase in the resources available to them of around EUR 7.5 billion at the European level, of which around EUR 900 billion are earmarked for Italy.

General Pre-COVID-19 Strategies Impacting Drivers

The pandemic came at a time when the European Commission was already grappling with an ambitious set of policy initiatives to make the European Union climate-neutral by 2050: the so-called European Green Deal, the initial package of which was approved in 2020. The plan covers many different sectors, including construction, energy, transport,

and mobility, but also biodiversity and food systems. It is in this perspective that the Farm to Fork and Biodiversity 2030 strategies appear particularly relevant to our analysis. The first includes a series of binding targets for Member States that aims to make European food systems sustainable on the basis of four pillars: food production, processing and distribution, food consumption, and the management of waste and losses. It provides an important opportunity to develop a food environment that supports the choice of healthy and sustainable diets, addresses climate change, safeguards biodiversity, and ensures fair compensation for all stakeholders in the supply chain [58]. The importance of this strategy lies in the fact that, for the first time, the EU is putting in place a program aimed at the sustainability of food systems, and it does so with a systemic vision, abandoning the sectoral approach that has characterized all of the previously adopted policies [59]. In synergy with the Farm to Fork strategy, the Biodiversity 2030 strategy was adopted with the understanding that cheap food production and intensive agriculture are causing the loss of biodiversity, and measures should be introduced to promote the ecological transition of the primary sector. To this aim, among the EU Biodiversity Strategy objectives, we found the reduction of the use of pesticides by 50% by 2030, the increase of organic farming and biodiversity in agriculture, and the reversing of the decline of pollinators. What is interesting to observe is that the Green Deal and, in this specific case, the Farm to Fork and Biodiversity strategies aim to address precisely those drivers that have been identified as the contributing causes of the onset of the pandemic, with the first being the dramatic loss of biodiversity in progress.

3.5.2. Italian National Policies

In the Budget Law 2021, the issues addressed are different (health, businesses, families, labor, young people, and women), but agriculture and the agri-food chain play a central role with the aim of boosting the recovery of the country affected by the COVID-19 emergency. Specifically, the measures regarding the agri-food sector were those relating to the establishment of a fund aimed at increasing the competitiveness of the agricultural, fishing, and aquaculture supply chains. At the same time, it was also decided that a fund would be set up for the enhancement of the sectors of beekeeping, hemp, and dried fruit. In addition, to combat waste and food emergencies, the government set up a fund for food emergencies and, to facilitate the business sector, introduced exemptions for contributions and income tax for young farmers and agricultural enterprises, the transfer of zero-interest mortgages to support agricultural enterprises run by women, the green bonus, the exemption of the first instalment of property tax for tourist accommodation businesses, tour operators, travel agencies, and entertainment, and the reduction to 10% of VAT on takeaway and delivery services [60].

Following the health emergency, the legislative initiative (subsequent to the Budget Law) focused on finding measures that could support the income of individuals and the survival of businesses. In the decree-laws “Cura Italia” (Decree-Law n. 18/2020), “Liquidità” (Decree-Law n. 23/2020), and “Rilancio” (Decree-Law n. 34/2020), various measures were introduced that also regard Goal 2 [61]. Decree-Law n.18 of 17 March 2020, better known as DL “Cura Italia” (converted into Law n. 27/2020), was the first decree approved during the health emergency with the aim of easing the shock originated by the COVID-19 epidemic. It identified four areas of intervention, including the strengthening of the health system and civil protection; support for work and income; support for the liquidity of businesses and families; and the temporary cessation of deadlines for the payment of taxes and social security and welfare contributions [62]. The measures were aimed at protecting those businesses, workers, and vulnerable parties most exposed to the effects of lockdown. With the Decree-Law n.23 of 28 April 2020 “Liquidità” (converted into Law 40/2020), concrete measures addressed the needs of businesses, artisans, self-employed people, and professionals. The decision was to transform the Guarantee Fund for SMEs in an instrument capable of guaranteeing up to EUR 100 billion of liquidity, and providing bureaucratic streamlining to access the guarantees granted by the fund.

In addition, measures were taken to strengthen the instruments aimed at supporting the exports of goods made in Italy, internationalization, and company investments [63]. With Decree-Law No. 34 of 19 May 2020 “Relaunch” (converted into Law 77/2020), the government allocated an additional EUR 155 billion to launch Phase 2 of the Italian economy in order to support the country’s recovery. This is an extraordinary measure aimed at strengthening certain sectors: health and safety, business support, labor, taxation, and tourism. Particular attention has been given to small businesses, providing liquidity for them to accelerate the restarting of the economy [60].

Law Budget 2020

The Budget Law 2020 differs from those previously adopted in its approach and its focus on sustainable development, or, rather, the ecological transition. It provides for measures in the areas of health, taxation, electronic payments, environment, family, and work, some of which relate to Sustainable Development Goal 1 “End all forms of poverty in the world”, and 2 “End hunger, achieve food security, improve nutrition and promote sustainable agriculture”. In line with this, on the political agenda, it was decided to increase the National Fund for the distribution of food products for the poorest members of society, and also to introduce a tax on the consumption of sugary drinks (sugar tax) in order to combat the problems of obesity and its associated pathologies [64]. In addition, the expulsion from the favorable regime of employees and pensioners with incomes in excess of EUR 30,000 and those who have spent more than EUR 20,000 on staff and ancillary work (flat tax), the tax on the consumption of plastic products (plastic tax) and numerous interventions aimed at promoting the Italian Green new deal have been foreseen.

National Recovery and Resilience Plan (NRP): The Italian Recovery Plan

In order to obtain aid under the Recovery Fund, Member States were obligated to submit their Recovery Plan, or Recovery and Resilience Facility (RRF), to the European Commission by April 2021. In Italy, the Recovery and Resilience Facility was named the National Recovery and Resilience Plan (NRRP). Italy will benefit from the highest amount of NGEU, namely EUR 127 billion in loans and EUR 82 billion in grants. Obviously, these will not be free, but the mechanism by which they will have to be repaid will be different. The loans that Italy will receive will weigh on our public debt, but at a limited cost, while the subsidies will be repaid with the EU budget. For this reason, it is important to spend the NGEU funds well. So far, Italy has not been very efficient, as it is the country that has received a considerable amount of money from Europe in the past, yet is third last for spending capacity.

Italy’s NRRP is divided into six structural thematic areas of intervention (digitalization, innovation, competitiveness, and culture; green revolution and ecological transition; infrastructures for sustainable mobility; education and research; inclusion and cohesion; health) to which a total of EUR 209 billion of the NGEU is allocated. In turn, the areas of intervention, called Missions, are a group of 16 components functional to the pursuit of economic and social objectives outlined in the government’s strategy. The components are divided into 48 lines of intervention for coherent projects [65]. For each Mission, the reforms essential for effective implementation are indicated, correlated to the concretization of one or more components. Italy will only be able to define itself as sustainable if it succeeds in reducing territorial, gender, and generational inequalities, and implements the processes of digital transformation necessary for geopolitical competition. It is evident that the crisis linked to the spread of the virus has exacerbated the limits caused by the austerity policies and, specifically, has highlighted the difficulties of the national political system. The difficulties are linked, in particular, to the inability and unpreparedness of interventions in terms of health and social assistance support in favor of fragile subjects.

4. Discussion and Conclusions

On the basis of the data collected in each section of the article, a graphic representation of the DPSIR model applied to the specific case of our research was developed (Figure 4). The factors for each component of the model have been identified.

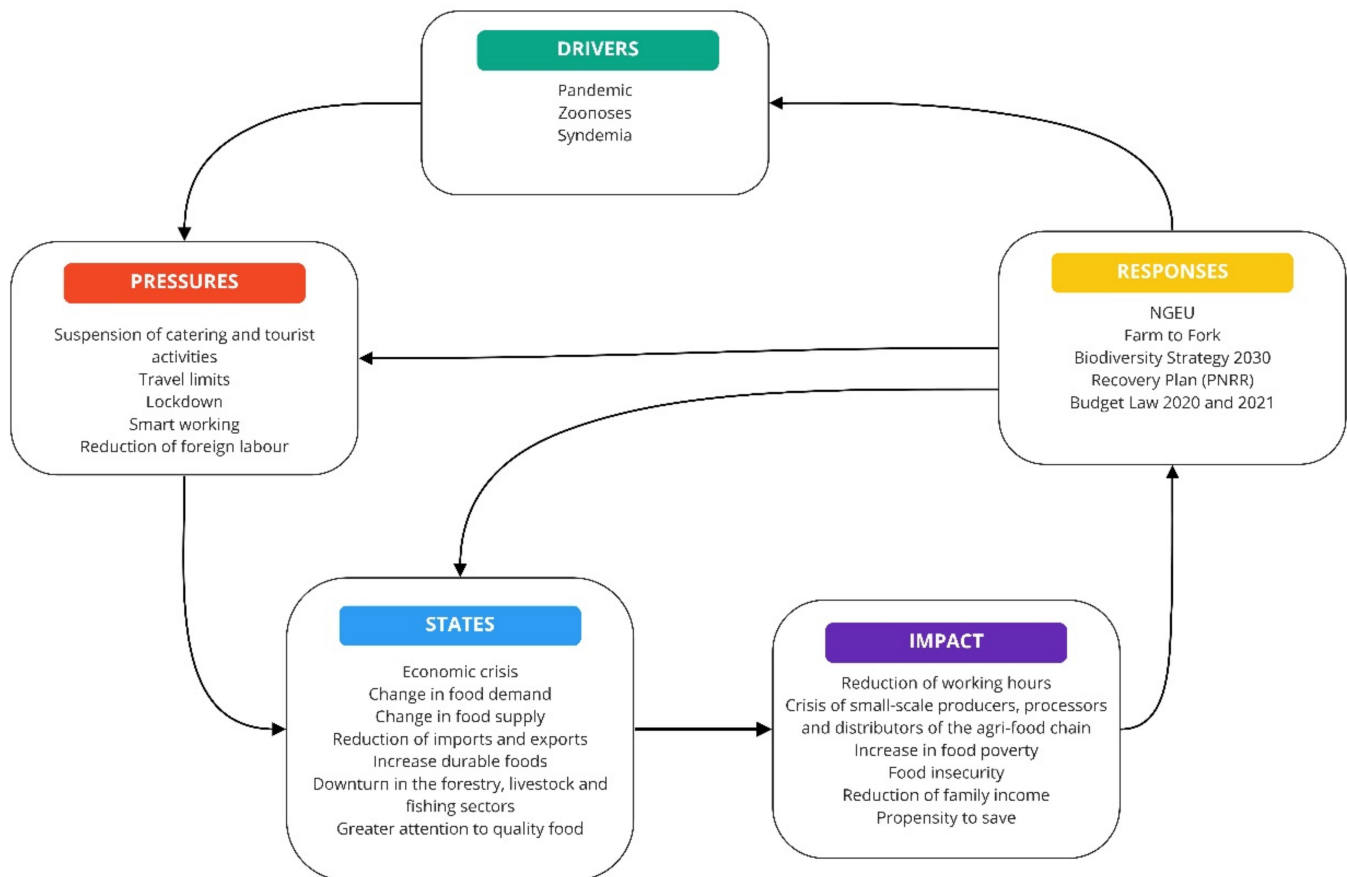


Figure 4. DPSIR model applied to our research.

Starting from the concept of syndemia, in this section, an analysis will be made of the policies implemented by the Italian government based on the 17 SDGs of the 2030 Agenda for Sustainable Development. This is a critical reading aimed at identifying the elements of analysis useful for understanding the nature of the decisions made at the European and Italian level, with particular attention to the functioning and transition of food systems. The European policies that have and will have a greater impact on driving forces are those of a general nature, such as the Biodiversity Strategy as part of the European Green Deal. With this strategy, the EU intends to promote measures to restore terrestrial and marine ecosystems, encouraging organic forms of agriculture and discouraging the use of pesticides. This appears to have a particular impact on the causes of the pandemic, given the consequences that the protection of natural capital has on the quality of air, water, and food, subsequently affecting human health and the spread of infectious diseases. At the national level, the NRRP, albeit to a lesser extent, also plays a crucial role in the driving forces related to the impacts of food systems. In fact, in Mission 2, the plan leverages on the Green Revolution and ecological transition in order to support forms of sustainable agriculture and a circular economy. Moving on to Pressures, the most important policies in this regard were those envisaged by the “Cura Italia” and “Rilancio” decrees. Through these two decrees, it was possible to activate a series of measures to protect small and medium-sized businesses and employees in certain sectors particularly affected by the lockdown (restaurants and bars, the cultural sector, and the tourist/hotel sector). With regard to States, the relevant policies were the “Rilancio” decree-law and the Budget Law 2021. Among

the most important measures of the decree law are the Emergency Income for families in difficulty, the redundancy fund, and the establishment of a solidarity fund.

From the point of view of food systems, it can be seen that the Budget Law 2021 has provided for a fund for the protection and relaunch of agricultural supply chains. Finally, the reference policies for mitigating impacts are mainly attributable to the “Liquidità” and “Cura Italia” decree-laws and the 2020 and 2021 Budget Laws. The “Liquidità” decree-law introduced a guaranteed fund for small and medium-sized enterprises (SMEs), while the “Cura Italia” decree provided for the establishment of the “Integrated Promotion Fund” in order to support Italian exports and the internationalization of the national economic system in the agri-food sector. The Budget Law 2020 introduced an increase in the national fund for the distribution of foodstuffs to vulnerable people, while the Budget Law 2021 decided to set up a fund for active policies, the reform of social shock absorbers, and a social fund for employment and training, which was certainly influenced by the shocks produced by the epidemiological emergency [66].

Taking into account what has emerged so far, it becomes opportune to highlight some reflections. From analyzing Mission 2 of the NRRP in relation to the SDGs, it emerges that there is a lack of an overall vision, essential to support the transition towards healthy agricultural and food systems. In order to respond to the major challenges imposed by climate change, it would be necessary to detail, in an explicit, linear, and logical manner, the intermediate targets and measures to be employed. In order to strengthen the systemic aspect of the plan, it would be useful to bring it into line with European policies, particularly the indicators and objectives established by the Farm to Fork and Biodiversity strategies. Similarly, the Budget Law 2021 also lacks a strategy aligned with the 2030 agenda, and this has caused a slowdown in the process of the ecological transition of the Italian food system, hindering the recovery of the country, which requires sustainable measures to protect people and the environment. In fact, although huge resources are foreseen to support the agricultural and agri-food sectors, the measures follow a wholly subsidiary logic without providing a clear reference to the concept of social, environmental, and economic sustainability, but rather envisaging measures directly related to the production process aimed at mitigating adverse impacts on the environment, including the fund for the development and support of agricultural, fishing, and aquaculture sectors and the fund for the protection and relaunch of the agricultural sector. These funds, if associated with environmental policy instruments, could incentivize the aspect of sustainability. The risk of the NRP, instead, lies in its standardization, and the communities asked to develop the projects often do not have the skills to implement them. Once again, the risk is that of inequality in the various projects, which exacerbates new hierarchies with increasingly marked inequalities. The marginal areas of the country are paying the consequences even more. Stressed by ordinary problems, they feel the need to find immediate solutions that are attentive to services and infrastructure and in conformity with society and nature. Both nationally and internationally, economic regression and the disruption of agri-food supply chains have affected the social determinants of health. They must be built with a systemic vision, but it emerges that there is still a tendency to think in watertight compartments, and this makes it difficult to achieve the SDGs.

Given the cross-sectoral nature of the SDGs, the policy-making process requires skills to overcome the fragmented view. Therefore, it was deemed necessary to build a scheme (Figure 5) to clarify how the political responses, implemented to stem COVID-19, are strictly interconnected with each SDG.

In our opinion, COVID-19 has solicited not only the birth and consolidation of solidarity actions implemented by private individuals and formal and informal organizations, but it has also developed the resilience capacity of the community with the aim of providing for the ascertained needs of vulnerable subjects. These responses try to fill the void left by state intervention, because the state often limits itself to implementing entirely emergency and welfare measures, failing to guarantee access to essential services and exacerbating social inequalities.

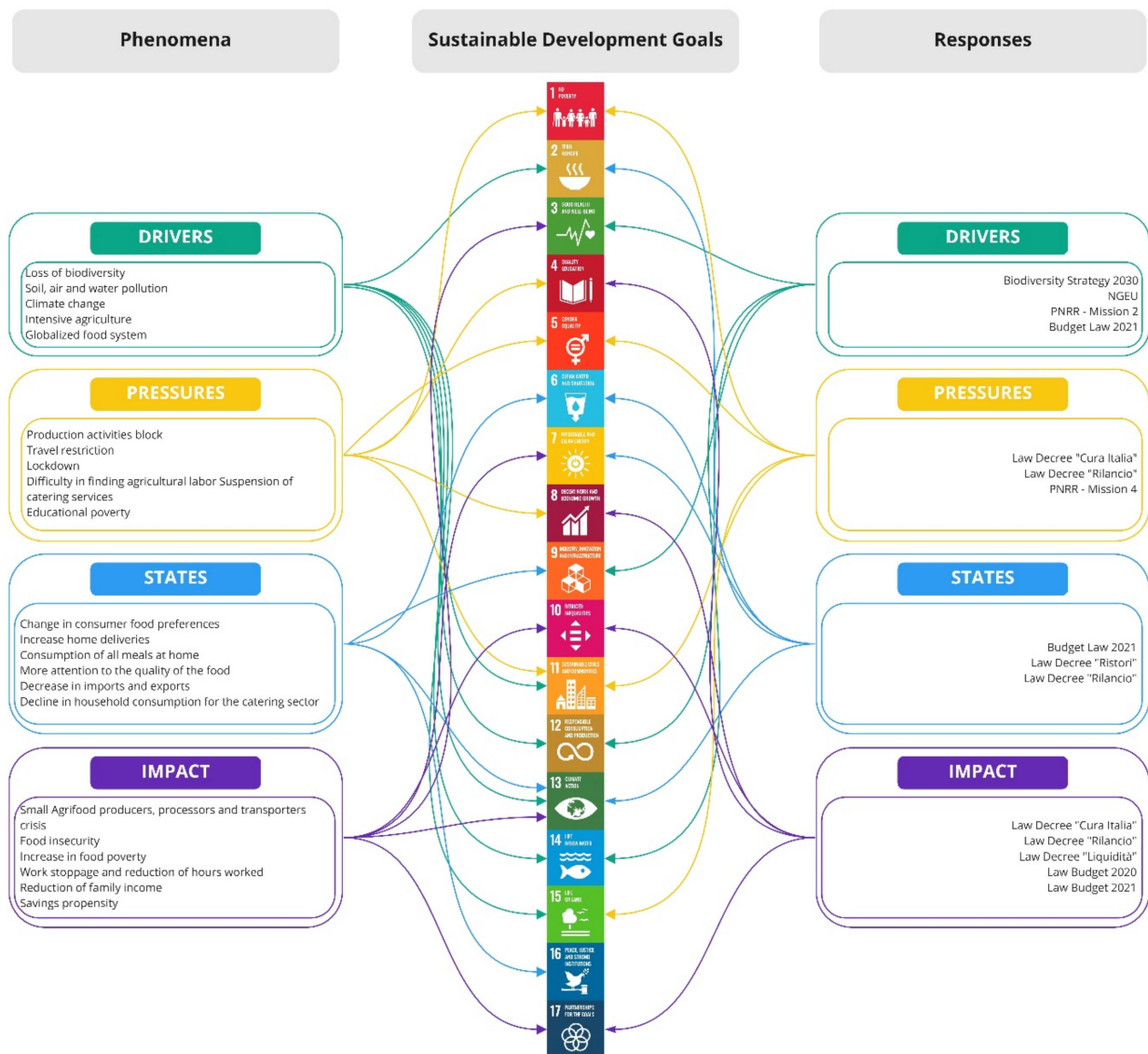


Figure 5. Responses to COVID-19 pandemic phenomena and their connections with SDG.

COVID-19, like any other shock, pushes towards forms of generosity and innovation by breaking the existing structure and opening the space to create a new one, but the biggest obstacle currently consists of being able to consolidate this new structure and redefining the structure and the functioning of the policy.

In conclusion, the pandemic, if its positive and negative aspects are analyzed, can become a learning tool for planning future interventions that are adequate and tailored to the reference context and based upon the real and concrete needs of individuals.

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