Socio-economic Effects of COVID-19 in Bulgaria: A Spatial Analysis

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Summary

This paper studies the socio-economic effects of COVID-19 in Bulgaria to uncover their multidimensional forms and provide a broad picture and empirical evidence of the inflicted changes. Based on available information and data as of the end of August 2020, the paper aims to uncover the key factors that drive the socio-economic processes and to determine the intensity, scale, and persistence of the immediate, multidimensional impacts of the outbreak and their territorial implications. The study is organized in three main parts. The first provides a short overview of the most relevant processes at a European level. The second uncovers, visualizes, and explains certain relations between the time dynamics in the COVID-19 spread at a national level, the pandemic containment measures, and different socio-economic indicators and trends. The third scrutinizes the specific processes at the regional and local levels, going deeper into the study of the different territorial factors, mechanisms, and scenarios. The mixture of quantitative and qualitative analyses in the study reveals that the COVID-19 crises severely devastated the Bulgarian economy in between March and May 2020, with some positive trends of recovery registered in June and July. The spatial discourse of the study detects diverse spatial impacts, with their size, strength, and expected duration varying according to specific territorial characteristics. Yet, we also detect significant entropy in the system with subjective and random factors often being of real importance. Finally, permanent, in-depth studies of the ongoing COVID-related processes are crucially needed to be able to foresee some of the highest risks and to conceptualize adequate responses.

Keywords: COVID-19, Pandemic, Bulgaria, Impact Assessment, Spatial Analyses, Local and Regional Development, Territorial Governance

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Introduction

The abrupt outbreak of the COVID-19 pandemic gave birth to some unprecedented phenomena in modern history. Due to the crisis borne out of the pandemic, the current socio-economic and political models are faced with challenges and dilemmas of efficiency, and put under pressure to transform and evolve. The unpreparedness and inability of public authorities and relevant structures to deal with the threat raised many issues concerning global security and questioned the efficiency of the existing world order itself. Furthermore, COVID-triggered processes added new variables and unknown quantities to 'good governance equations' and thus have strong implications on planning, territorial security, and local and regional development.

Being a country where major trends in the spread of COVID-19 often diverged from those observed in Europe (and even in neighbouring countries), Bulgaria presents an interesting case study to explicitly illustrate some of the pandemic's potential effects and to explain the determinants and mechanisms that define the size, scale, and strength of those impacts. At the beginning of the pandemic in Europe, while most of the European countries were registering a rapidly growing number of COVID-19 cases, the situation in Bulgaria was very much under control, with relatively low number of infections. Then, in June and July, when newly registered COVID-19 cases decreased in most of the European countries, Bulgaria was severely struck and reached most of its record case numbers. The major question that arises is whether or not these peculiarities are related to the restriction measures taken in the country. From another point of view, Bulgaria is an interesting case because it is both an EU member state (hence being integrated into the EU decision-making structures, being a potential beneficiary of EU recovery funds, etc.), and a Balkan country (hence being part of a region that was 'peripheral' to the pandemic at the beginning, sharing lots of common social, economic, and political features with other eastern EU member

states and a number of non-member states, etc.).

The pronounced spatial discourse in the spread of the virus and in its related impacts can be seen as a kind of rehabilitation of the spatial sciences (and especially geography) in the 21st century. Spatial aspects of different phenomena are particularly visible in the context of growing hybridization, an increasingly networked society, globalization, and the free movement of people, goods, services, and capital. These features of the modern world have generally been treated as a strong privilege and a common good by the social sciences and humanities. However, in light of the COVID-19 pandemic, it turns out that these characteristics have much to do with the major factors responsible for inducing vulnerability and insecurity in different economic and territorial systems. That is why the COVID-19 pandemic's spatial dimensions and components must not only be explored but also adequately managed at different territorial levels (McCoy, 2020).

If we consider outbreaks of infectious diseases as "socio-spatial processes with complex geographies" (Kuebart and Stabler, 2020, p. 482), the analysis of the territorial diffusion of these diseases in modern societies requires a multidimensional approach to space through the prism of the TPSN (Territories, Places, Scales and Networks) framework (Cummins et al., 2007; Jessop et al., 2008). Networks are arguably the most important in conceptualizing the geographies of disease outbreaks because the networking of communicable diseases necessarily occurs via ties of personal contacts or infection pathways (Bian, 2004). Due to network patterns, infectious diseases hardly spread evenly in space. Therefore, further analyses must focus on the behavioural patterns of humans and the way they interact with their built environment (Keeler and Emch, 2018). The relationship between places and people has been considered highly relevant for the understanding of how infectious diseases spread. Places and networks are closely inter-related in the

process of transmittable disease outbreaks (Wolf, 2016). Characteristics of places, such as size, shape, density, and available infrastructure (among others) determine to a large extent not only the intensity and frequency of communications but also "the sociodemographic configuration of the people most likely to be found at those places" (Kuebart and Stabler, 2020, p. 485).

The aim of this paper is to provide a broad picture of COVID-19's socio-economic effects in Bulgaria by analysing some of the immediate, multidimensional impacts of the outbreak and their territorial implications. The research is based on available information and data as of the end of August, 2020 (i.e. almost six months after the first active COVID-19 case was registered in the country). While trying to reveal and explain the key factors and mechanisms that drive the multidimensional transformations within the country in the last few months, the study concentrates on the most relevant economic, social, and (to some extent) political processes caused by the pandemic and measures taken to mitigate its adverse effects. The analysis is based on diverse data from: official institutional statistics and questionnaires; information retrieved from the government's and national crisis management staff's regular briefings; publications in national, regional, and local press; institutional and municipal websites; TV interviews and media reports. Further, own calculations are used to uncover the most relevant socio-economic changes, effects, and trends, with different techniques applied to visualize those major research focuses. Finally, given the nature, scope, and ambition of the study, some research considerations and limitations should be taken into account: the data is still insufficient for making strong general conclusions, especially at lower territorial levels (regional and local), with its reliability sometimes questionable; many of the impacts would only be registered and felt in a mid- and even long-term perspective; the pandemic is not yet over so empirical research must be seen as a snapshot of the current situation.

The first part of the paper provides a short overview of the most important and relevant processes for Bulgaria going at the European level, with a special emphasis on programmes and measures addressed to find effective solutions to deal with the challenges of COVID-19. The second part follows the temporal dynamics in the spread of the virus, the pandemic containment measures taken at the national level, and the changes in some key socio-economic indicators. Subsequently, the paper presents empirical evidence of the diverse impacts of the COVID-19 pandemic in Bulgaria by uncovering, visualizing, analysing, and explaining different trends, relations, and models. Finally, the third section scrutinizes the specificities of the most relevant processes at the regional and local levels, going deeper into the study of the different territorial factors, mechanisms and scenarios able to explain these processes and the situation in the country, to foresee some of the greatest risks, and to conceptualize adequate responses.

## Europe and the Challenges caused by the COVID-19 Pandemic

After the first recorded case in Europe on January 24, 2020 (in France), the virus began to spread quickly throughout the continent, turning it into a major global disease outbreak (especially at the end of February and in March). As of August 31, 2020, more than 4.2 million people in Europe had been infected, with almost 220,000 deaths registered (WHO, 2020)[1]. Europe, like many other regions in the world, is experiencing a rapid economic slowdown as a result of the fight against the spread of COVID-19. According to Eurostat, the EU's seasonally adjusted GDP for the second quarter of 2020 is 11.7% less than in the first quarter of 2020 and 14.1% less than the second quarter of 2019.[2] Further, the latest forecasts of the European Commission (2020b) suggest that the EU economy will contract by 8.3% in 2020 and eventually begin to recover in 2021 (with an estimated growth of 5.8%). The EU is facing difficulties in finding the right balance between limiting the spread

of the virus and supporting national health systems on the one hand, and dealing with the severe negative impacts inflicted on the economy (Figure 1), mitigating the diverse consequences, and recovering from the socio-economic crisis as quickly and painlessly as possible on the other. It has reached a point where politicians have had to make the difficult decisions about whether to prioritize "saving the people before saving the economy" or "saving the economy before saving the people" (Ozili and Arun, 2020, p. 20).

The adoption of emergency measures related to the repatriation of EU citizens, funding of relevant scientific research, and bringing in new (or transforming old)

instruments and initiatives to control the crisis, began already in January. Dealing with the COVID-19 pandemic was also critical to decisions on the future EU budget – after five days of intense negotiations, the Special European Council (July 17-21, 2020) finally agreed on a comprehensive package of over 1.8 trillion euros, which includes the Multiannual Financial Framework (2021-2027) and the EU Recovery Fund. The debates on the latter, perceived as the COVID-19 funding deal, were very controversial with claims made by those states most impacted by the virus (such as Italy and Spain) being highly contested by the 'frugal four' (Austria, Denmark, Sweden, and the Netherlands) and, to some degree, Finland before the final deal was struck.

Figure 1. COVID-19 Impact Index by Industry
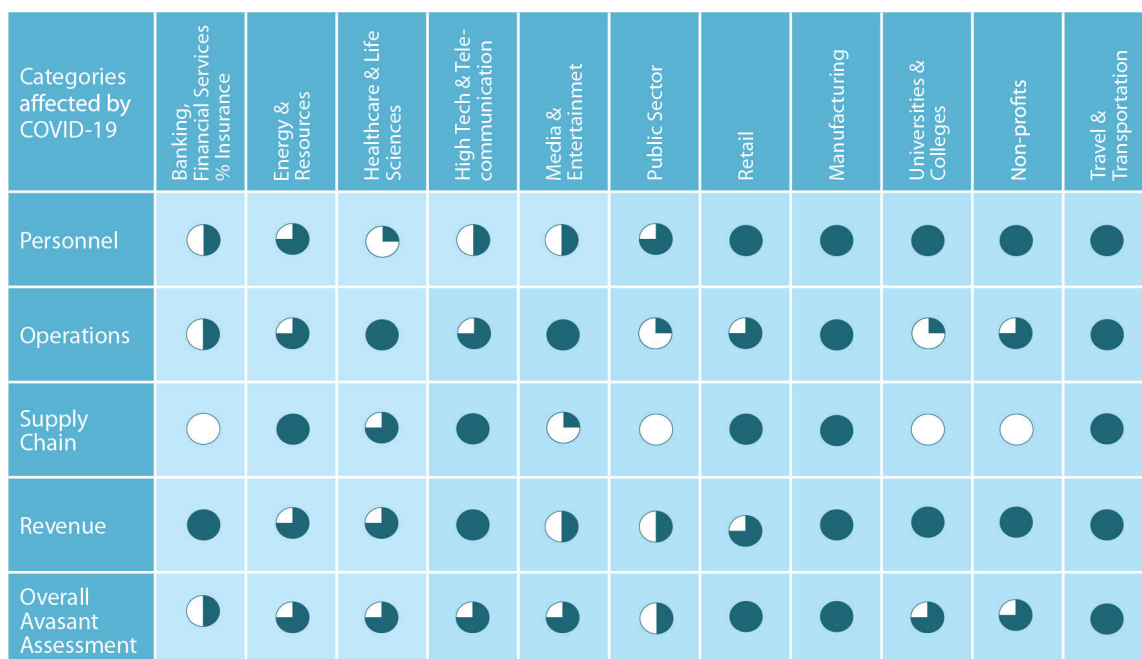
Source: Dunlap et al. (2020)[3]

An in-depth analysis of trends in the spread of COVID-19 in Europe (based on World Health Organization statistics) uncovers significant differences in confirmed cases and deaths both between regions and between countries within a single region. One of the main reasons for this variability is the different national approaches, measures, and solutions to control the virus. Governments are working under conditions of "radical uncertainty" to deal with the

"highly asymmetric" impact of the various challenges posed by the crisis (OECD, 2020, pp. 3-4). In order to make full use of the most universal measure to combat coronaviruses, social distancing, different countries (e.g. Italy, Bulgaria, Spain, France, and Austria, among others) have undertaken partial or complete national lockdowns, combined in some cases with the imposition of a 24-hour or a partial curfew – unprecedented (in terms of scope) measures affecting

more than half of the global population. There is already empirical evidence that the number of registered weekly cases is lower in countries with a complete lockdown, as well as in those with an early lockdown decision (Al Humaid et al., 2020). Moreover, early lockdown approaches not only separated the influenza from COVID in the winter months, but also postponed the peak of the infection and gave countries/regions the opportunity to better prepare their health systems for the threat. However, given that all countries saw tremendous increases in COVID-related figures after the lockdown and that the economic effects were devastating, it is still unclear whether or not lockdowns were the best approach. Yet, the removal of temporary restrictions is seen as particularly important for restoring the EU's economy and fundamental values related to the freedom of movement and further integration, including in countries with which the Union has special relations (the United Kingdom, Switzerland, Liechtenstein, Norway, and Iceland) and potential members from the Western Balkans and Eastern Europe. Thus, in June and July, a gradual opening of borders and removal of some restrictions followed, with each country maintaining the right to impose quarantine or declare specific rules for entry.

More and more policy measures to control the pandemic and deal with the growing global recession were adopted by different countries with the ongoing spread of the virus and multiplication of related problems. They can be conditionally divided into four groups: *monetary measures* (granting regulatory forbearance or interest moratorium, provision of liquidity, purchase of bonds and securities, lowered interest rates, and sustained flow of credits); *fiscal measures* (government stimulus packages, provision of income support, and social welfare payments); *public health measures* (public and border quarantine, stay-at-home policies, and social distancing) and *human control measures* (border closures, shutdown of schools, military enforcement of stay-at-home orders, travel bans, and visa denial and suspension) (Ozili and Arun, 2020).

The outbreak of COVID-19 and the closure of a large number of companies also revealed the EU economy's dependence on China, including in vital areas such as the production of pharmaceuticals, protective masks, respirators, disinfectants, and other medical equipment. Supply chain disruptions, the closure of borders, and complications with the transport sector proved the instability, uncertainty, and unsustainability of the modern global production system (Rustici, 2020). From this point of view, the concept of nearshoring is gaining increasing popularity at the EU level. Decision makers are reassessing the potential benefits of stimulating production spatially closer to the European consumers, instead of production being primarily concentrated in distant countries with cheap labour markets. This can reduce logistics costs, delivery times, and most importantly provide greater flexibility and adaptability in similar, unforeseen situations with distorted supply chains. COVID-19 coincides with debates and preparations for a new programming period and the new EU industrial strategy in ways that can act as a kind of political impetus not only for the modernization and digitalization of European industrial policy, but also for its Europeanisation (Schmitz, 2020). Thus, by building and applying progressive strategies for attracting investments, the Balkan countries stand a very good chance of turning into a desirable, nearshoring destination. At the same time, in terms of protectionism, the European Commission attaches special attention to balancing and controlling the EU's openness to FDI through the screening mechanism (EC, 2020a). It is designed as an instrument for preventing inflow of capitals unfavourable for the EU and for safeguarding any potential capture and control of key sectors by third countries.

No matter how adequate, reasonable, and timely the above-mentioned EU strategies and measures to address the COVID-19 pandemic seem to be, applying a one-size-fits-all approach is unlikely to succeed. Therefore, an emphasis on the diverse local contexts is needed by utilizing place-based approaches taking into account the specific

combination of territorial capabilities, potentials, and resources, as well as the particular economic, social, and political conjunctures.

Impacts of the COVID-19 Pandemic in Bulgaria

The first COVID-19 case in Bulgaria was registered on March 8, 2020, i.e. relatively late (even for the Balkan region). This could be considered as crucial in terms of enhancing the general preparedness to counteract the forthcoming threat. At that time, the country already had a functioning national crisis management office, whose immediate recommendations made the Bulgarian Parliament declare a state of emergency (starting from March 13) and impose strict measures to contain the spread of the virus. The fairly quick reaction was widely considered as a necessity given the weak and potentially vulnerable healthcare

system of the country. However, just a few weeks later, public debates were already more focused on how to mitigate the adverse effects of the measures themselves and find the right balance between restrictions and restoration of the economy and social life.

Before uncovering and analysing the multidimensional social, economic, and political effects of the COVID-19 pandemic in Bulgaria, it is important to firstly trace a possible connection between the stringency of the restrictions and cases/deaths related to the outbreak. An in-depth retrospective analysis suggests that six separate time periods (Figure 2) can be conditionally distinguished. The differentiation of these periods makes it easier to characterize the ongoing trends and shed some light on the relationship between the spread of the virus and the political measures aimed to counter that process:

Figure 2. Comparing COVID-19 Cases and Deaths with the Stringency of Applied Measures (March – August 2020)
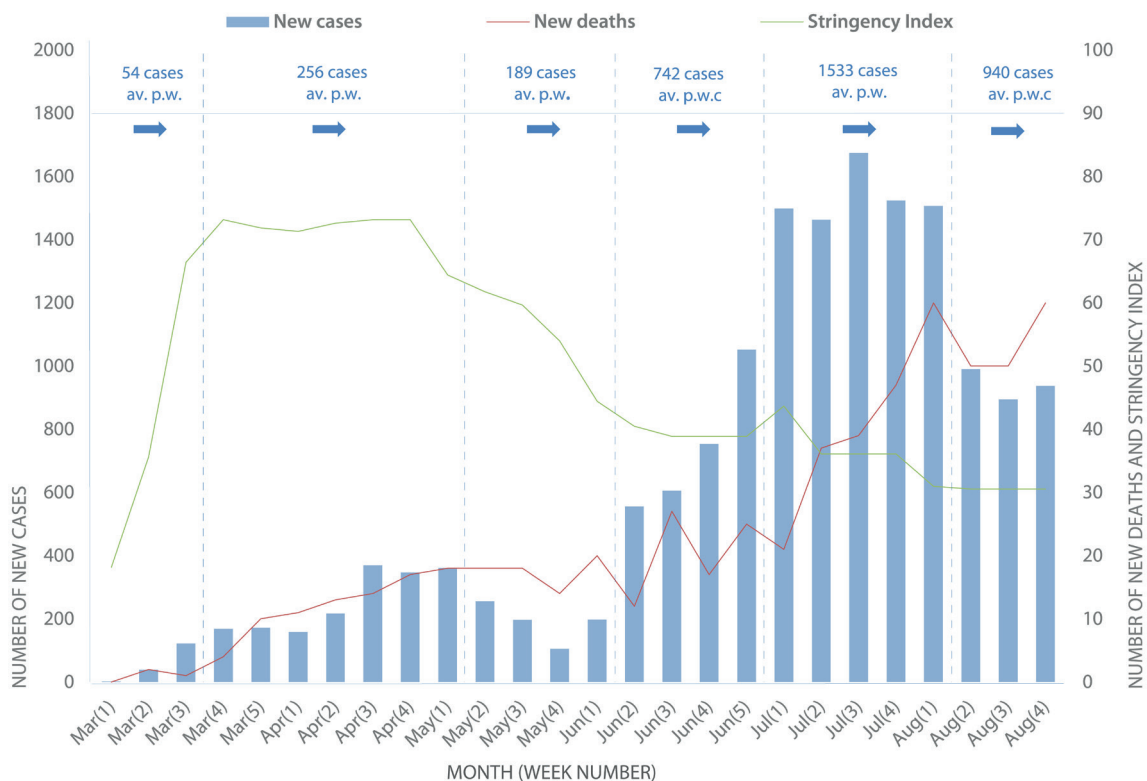
Source: Authors' elaboration based on Hale et al. (2020) and OurWorldInData (2020) data.

- March (Week 1) – March (Week 3): The first period denotes the quick introduction of diverse initiatives to prevent the spread of the virus, which is clearly attested by the Stringency Index (SI)[4], measuring containment and closure, as well as economic and health system policies related to COVID-19 (Hale et al., 2020). These measures were in line with the growing number of newly registered cases, although in comparison to the other European countries the overall number remained low (23 total cases per million as of March 22 compared to an average of 30 for the Balkan countries and 225 for the EU countries).

- March (Week 4) – May (Week 1): This period is characterized by the application of the most rigorous measures (the weekly average SI reached its peak level of 73.2), including school closures, restrictions on gatherings and internal movements, and various international travel controls, among others. The number of new cases per week was growing slightly, as were deaths (on average 12.4 per week). However we can conclude that the situation was, to a large extent, under control.

- May (Week 2) – June (Week 1): The decreasing number of new cases (only 189 new cases per week on average), combined with growing social pressure, economic concerns, and the general feeling that the worst period was over, resulted in a very brief removal of some major restrictions in an attempt to return to normal life. The SI dropped to 44.4 in the last week of this period.

- June (Week 2) – June (Week 5): The average number of new cases per week increased almost fourfold (in comparison to the previous period) to 742. The assumption is that the growing number of new cases is simply related to the higher number of tests conducted, as there is a certain correlation between both variables (on average, 4.5% of the tests in this period were positive). However, this logic might conceal the real nature of the problem, which is better expressed by the exponentially growing number of COVID-19 patients who needed to be hospitalized[5] (from 158 to 463 within these four weeks).

- July (Week 1) – August (Week 1): During this period, the new cases registered per week doubled and stabilized at a very high level for the country, setting some new records. Around 5% of all tests were positive. The constant increase of hospitalized people (reaching over 850 in the first week of August) was especially concerning for the stability of the healthcare system.

- August (Week 2) – August (Week 4): The last period is characterized by a significant drop in newly registered cases. The number of hospitalized people also gradually decreased to around 710-720. These positive trends made some health experts predict that the pandemic was fading away, but there are already some signs that those numbers don't necessarily reflect the reality. On the one hand, these figures seem inconsistent with the limited restriction measures (and lack of control for their real implementation). On the other, health authorities themselves admit that, due to some organizational problems, they can't register the majority of active COVID-19 cases in the country.[6] This latter fact might explain why Bulgaria is among the EU countries with the highest COVID-19 death ratio.

The analysis suggests a high probability of significant linkages between imposed restrictions and COVID-19 spread in Bulgaria. By calculating Pearson correlation coefficients to estimate in what time frame the pandemic containment measures are expected to provide best results, we can conclude that the time delay in the case of Bulgaria is generally around three weeks with a strong negative correlation of -0.57 (i.e. the lower the SI is in week 'x', the more likely to have a higher number of new cases in week 'x+3'). Yet, the studied period is relatively short for drawing generalizable conclusions, and the SI itself doesn't indicate

the extent to which the different measures were applied, followed, and abided by in practice.

Apart from the purely medical aspects, the pandemic and the related restrictions posed a very serious challenge to the Bulgarian economy. The size of this challenge could be convincingly illustrated by the changes in the Total Business Climate Indicator[7] for the country (Table 1). While remaining stable at the very beginning of the pandemic (i.e. in March), the declared state of emergency and

the quick introduction of serious restrictions (affecting some businesses) made its value collapse to -17.7 in April, thus reaching its lowest level ever since February 1997. Yet, in the following months (until August 2020) a positive trend was observed with a recovery of more than half of the losses reported in April. The biggest impact and the lowest speed of recovery are both reported in the business climate of the service sector, with problems related to tourism, transportation, and education playing a key role.

Table 1. Dynamics of the Business Climate (in %) in Bulgaria (January – August 2020)

	January	February	March	April	May	June	July	August
Total Business Climate Indicator	28.5	27.7	24.0	-17.7	-5.9	5.5	8.0	8.5
Business Climate in industry	26.8	26.8	21.6	-10.2	1.2	10.9	11.0	11.2
Business Climate in construction	30.3	30.8	32.2	-13.4	3.9	18.3	16.5	16.7
Business Climate in trade	41.6	41.0	34.4	-17.6	-1.4	14.4	20.8	17.9
Business Climate in service sector	17.0	12.4	10.3	-36.8	-34.3	-27.3	-19.1	-14.5

Source: Authors' calculations based on National Statistical Institute of Bulgaria (2020b).

The worsening business climate (accompanied by the forced closure of some businesses such as retail shops and restaurants) and the inability of others to act at full capacity resulted in significant changes in the labour market marked by a sharp increase in the unemployment rate in April (Figure 3). Then, less than 13,000 people were hired while over 87,000 (2.1% of the working age population) were registered as newly unemployed. The unemployment rate reached 9% in May and decreased slightly to 8.3% in June (when, for the very first time since the beginning of 2020, the number of new hires exceeded that of the newly unemployed), and further to 7.9% in July (in July 2019, it was only 5.3%). Yet, this mild sign of mitigation may not be related

to any positive mid- and long-term effects, as the current decrease in unemployment might be explained by seasonal factors. A survey among non-financial enterprises conducted by the National Statistical Institute of Bulgaria (2020a) shows that from March to July, on average, 30% of enterprises declared to make use of paid leaves in a single month during this period and 21%, unpaid leaves. Almost 14% were forced to lay off personnel, while less than 8% benefited from the tailored government subsidies (a national programme aimed at financing 60% of the wage costs of enterprises that, due to the coronavirus outbreak, would otherwise lay off personnel). Only 5.7% of enterprises reduced wages and salaries (Figure 4). These numbers suggest

that many enterprises were forced to go through broad transformations and that, if the rise in the unemployment rate was to be avoided, there should have been more effective political measures. The changes in the Bulgarian economy and the asymmetric

Figure 3. Unemployment in Bulgaria (January – July 2020)

Source: Authors' elaboration based on the Ministry of Labour and Social Policy of Bulgaria (2020).

Figure 4. Measures taken by Enterprises in Relation to their Personnel (March – July 2020)
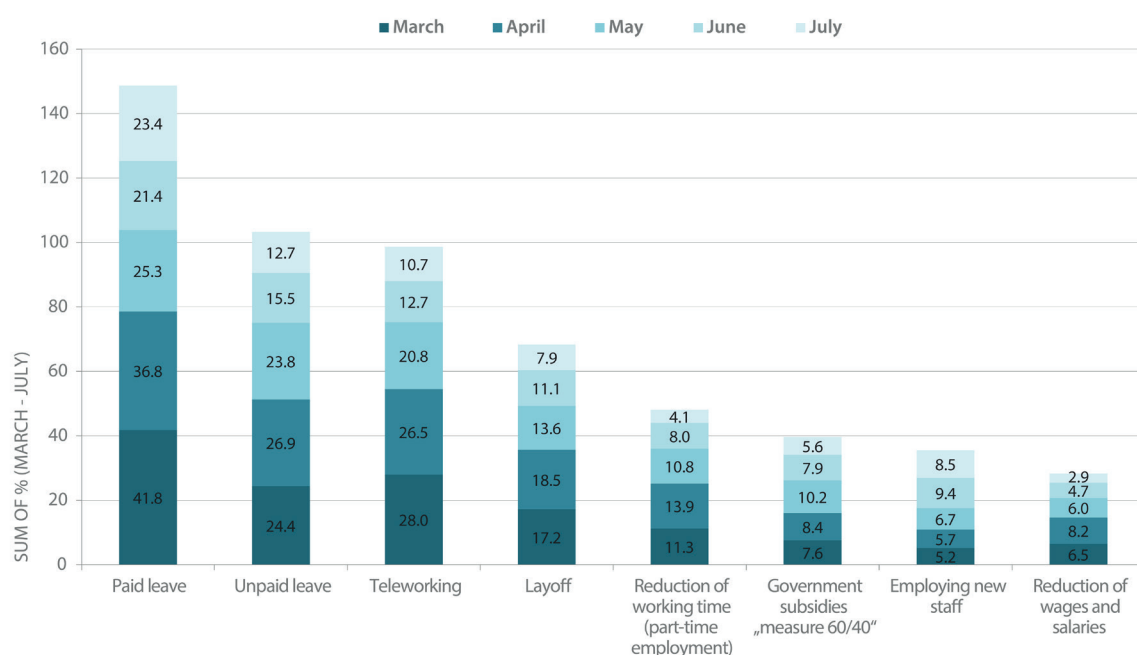
Source: Authors' elaboration based on National Statistical Institute of Bulgaria (2020a).

effects caused by the COVID-19 outbreak can also be perceived in an analysis of transforming industries in the country. A month by month comparison between the Total Industrial Turnover Indices for 2019 and 2020 (Figure 5) reveals the deterioration of all industry in the first three months of the pandemic, with the growth rate of the general index falling from 5.6% in January to -25.6% in May. In June and July, a significant recovery is observed with figures almost reaching their 2019 levels. While the major sub-sectors (mining and quarrying, manufacturing, and electricity) follow more or less the general trend, it's more interesting to capture the dynamic processes related to some specific manufacturing activities. The manufacturing

of motor vehicles (mainly production of automotive parts and components) has been a success story for the country in the last few years. However, it suffered severely during the pandemic due to its globalized nature and strong connectivity with companies that were forced to shut down. Another example of an activity negatively influenced by both disrupted supply chains and a general decrease in demand is the manufacturing of machinery and equipment. On the other hand, turnover in food production remained relatively stable, while the manufacturing of pharmaceutical products even registered better results in comparison to 2019, with positive growth rates for each month in the period from March to June.

Figure 5. Monthly Comparison between the Total Industrial Turnover Indices for 2019 and 2020 (January – July 2020)
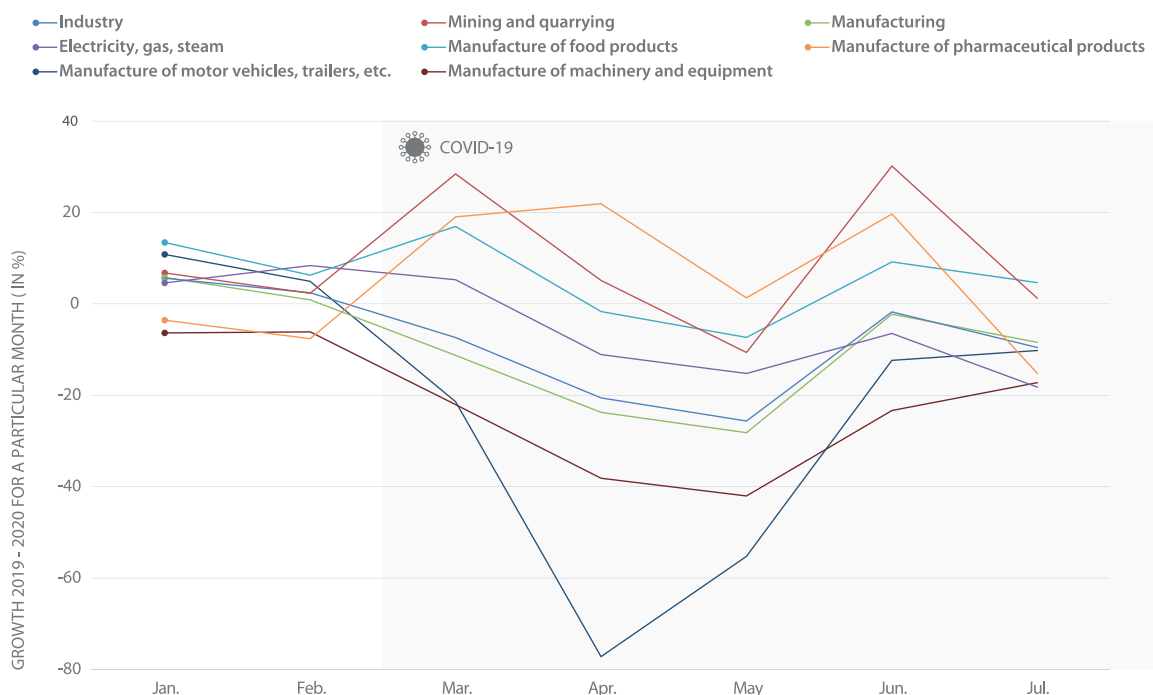
Source: Authors' calculations based on National Statistical Institute of Bulgaria (2020b).

The pandemic also severely affected retail trade, which registered an 18-20% decrease in turnover for April, May, June, and July compared to the amounts generated for the corresponding months in 2019 (Figure 6). At the start of the outbreak the retail sale of food, beverages, and tobacco remained stable, but decreasing incomes and consumption made its turnover drop

significantly in the following months. With regard to non-food products, the sale of the automotive fuel shrank (unsurprisingly, due to travel restrictions and decreased industrial production). The most dispensable consumer goods seemed to be textiles, clothing, and footwear. This can be partially explained by the closure of some specialised stores and the parallel growth of retail via

mail-order houses or online shopping, with the latter compensating (to some extent) the reduced sales of textiles, clothing, and footwear in stores. Curiously, in July, despite

significant fluctuations earlier, the growth of all analysed variables converged (except for online sales) ranging from -12% to -23%.

Figure 6. Monthly Comparison between Turnover Indices in Retail Trade (except motor vehicles and motorcycles) for 2019 and 2020 (January – July 2020)
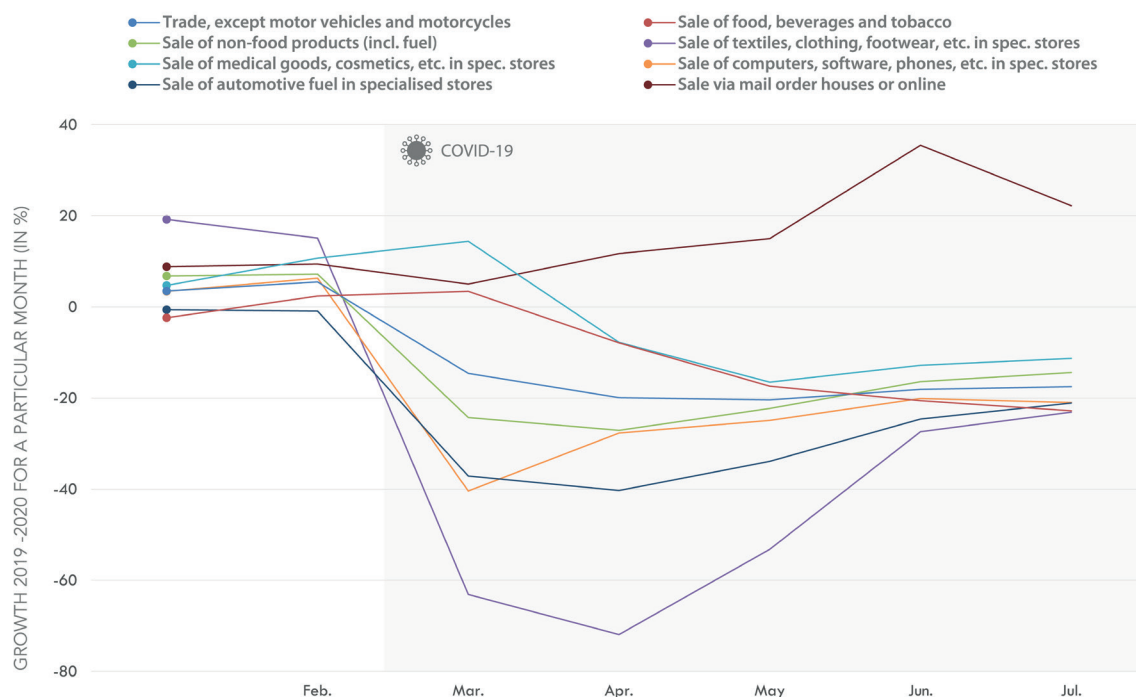
Source: Authors' calculations based on National Statistical Institute of Bulgaria (2020b) data

The above-mentioned trends in industry and trade are indicative of the entire Bulgarian economy. They explain, to a large extent, why forecasts remain rather pessimistic, with some international organizations forecasting a contraction of the Bulgarian economy by between 5% and 7% in 2020, e.g. the European Commission (-7.1%)[8], the World Bank (-6.2%)[9], the European Bank for Reconstruction and Development (-5%).[10]

Spatial Discourses and Scenarios related to the COVID-19 Crisis in Bulgaria

Already in the first few months of COVID-19's spread across Europe, different studies and observations revealed that impacts can vary widely in scope, not only between countries but also within countries (Fernandes, 2020; Böhme and Besana, 2020; Buheji et al., 2020; etc.). The regional and local effects of the COVID-19 outbreak seem to be highly

heterogeneous, with territorial specificities bringing significant differences in terms of crisis management and the need for policy responses. From this point of view, spatial discourses and implications play a key role in the following analyses related to: the existing outbreak patterns in the country; the different levels of risk assigned to territorial units; the diverse scenarios at regional and local levels based on the nature of the political initiatives taking place, the attitudes of local communities towards measures, and the COVID-driven behavioural models of different industries and companies, for instance.

In Bulgaria, the first COVID-19 outbreaks were associated with:

- ski resorts (e.g. Bansko, responsible for some of the first cases in Lovech, Plovdiv, Burgas, etc.);

- migrant workers returning from Italy, Germany, the United Kingdom, etc., some of whom took part in family gatherings and celebrations upon return (Lom, Kaolinovo, etc.);

- participation in religious events (Samokov, Perushtitsa);

- local outbreaks in closed environments (retirement and nursing homes in Vidin, Ruse, Dobrich, etc.);

- employees in manufacturing working in high-density environments (Dospat, Sarnitsa, Pleven, Pazardzhik, Septemvri, etc.); and

- Roma neighbourhoods characterized by above-average household sizes, high building densities and poor hygiene (Yambol, Peshtera, Sliven, Kyustendil, etc.).[11]

At a later stage, attendance of sporting events (Sofia, Plovdiv, etc.), the organization

of students' farewell balls (Veliko Tarnovo, Plovdiv, etc.), and the reopening of discos, clubs, etc., played a major role in the spread of COVID-19. Outbreaks in closed environments, such as those in care facilities for elderly people, generally have a more limited impact on the spatial distribution, but are nevertheless an important feature of the COVID-19 geography. In contrast, Roma neighbourhoods affected by the virus have a much stronger spatial impact on the diffusion of the virus beyond the original outbreak. The main reasons are related to the socio-cultural specificities of this ethnic group such as: large families generally living in small, unhygienic homes; many nomadic communities characterized by greater mobility, seasonal employment, and continuous dislocations; weak health culture and low percentage of people with health insurances; free spiritedness and habitual negligence of social rules and norms; and cultural traditions related to organizing crowded family gatherings and celebrations. It is noteworthy that in

Figure 7. Map of Bulgaria showing NUTS3 regions' Centres, as well as all Cities/Villages mentioned in the paper

Source: Authors' elaboration.

the Roma neighbourhoods where the services of medical mediators were used, the negative consequences of the virus are smaller (Sofia, Plovdiv, etc., in contrast to Yambol).[12] Thus, with some conditions, we may also consider the existence of an ethno-cultural model for the spread of COVID-19 in the country.

In many cases, large cities with their open economies, business travels, and active communications served as entry points for the virus, though some rural areas were also affected. This fact illustrates one of the difficulties in making territorial classifications or conceptualizing well-grounded spatial models of COVID-19's spread. Further, there is no strict correlation between population density and the spread, scale, and intensity of the disease around the country. This finding is also backed by Basset (2020), who proves that density itself cannot completely explain the processes of spread and considers issues related to poverty, poor housing conditions, and limited access to healthcare as more important factors. Cities, large and dense by definition, inevitably support explosive viral transmissions, but household congestion and poverty have even stronger impacts (Bell et al., 2009; De La Barra, 2000). The various socio-cultural, demographic, economic, and geographical features of different localities influence the patterns of disease transmission and explain why there are numerous outbreaks and mini-epidemics across the country that are difficult to classify. Yet, their studies help draw some conclusions about the spatiality of the COVID-19 pandemic in Bulgaria.

The high probability of a rather asymmetrical spread and impact of COVID-19 makes it even more important to pay special attention to the healthcare systems at certain territorial levels and assess their crucial differences in terms of vulnerability. To estimate the general COVID-related risk ahead of the healthcare systems in the NUTS3 regions of Bulgaria (or the so-called 'oblasts'), separate risks in three different categories are assessed:

- Demographic issues measured by:
  1) Population aged 65 and above (% of total population); and

- Healthcare issues – measured by:
  1) Number of hospital beds per capita;
  2) Number of physicians per capita

- COVID-19 spread – measured by:
  1) The total number of registered cases per capita; and
  2) Growth of registered cases in the last three weeks.

The overall risk (Figure 8) is aggregated on the basis of these three sub-risks. It is noteworthy that given the dynamism of indicators related to the spread of the virus and their relative unpredictability, the final results should be treated as a snapshot of the current situation and used only for short-term forecasts. They can nonetheless signal growing risks for territorial security and disclose some important aspects relevant to: adjusting and refining certain strategies, measures, and responses; applying differentiated approaches and tailor-made local policies; as well as conceptualizing the need to reform certain regional and local healthcare systems. The analysis of the results reveals that:

- Three NUTS3 regions (Vidin, Dobrich and Kyustendil) are considered at very high risk and five (Pernik, Blagoevgrad, Smolyan, Yambol and Gabrovo) at high risk. The rest of the NUTS3 regions are grouped within medium and low risks; none can be categorized as very low risk.

- Most of the regions characterized by unfavourable demographic and healthcare conditions are generally spared at this stage by the pandemic. There, the processes are to be followed strictly as the eventual spread of COVID-19 could easily cause havoc and a collapse of the system.

- Given the relatively well-structured spatial model, with many regions bordering ones with similar problems, it may be relevant for regional authorities to design common strategies to address COVID-19 challenges.

Figure 8. Risk Estimation for Healthcare Systems at NUTS3 Regional Level (as of July 31, 2020)
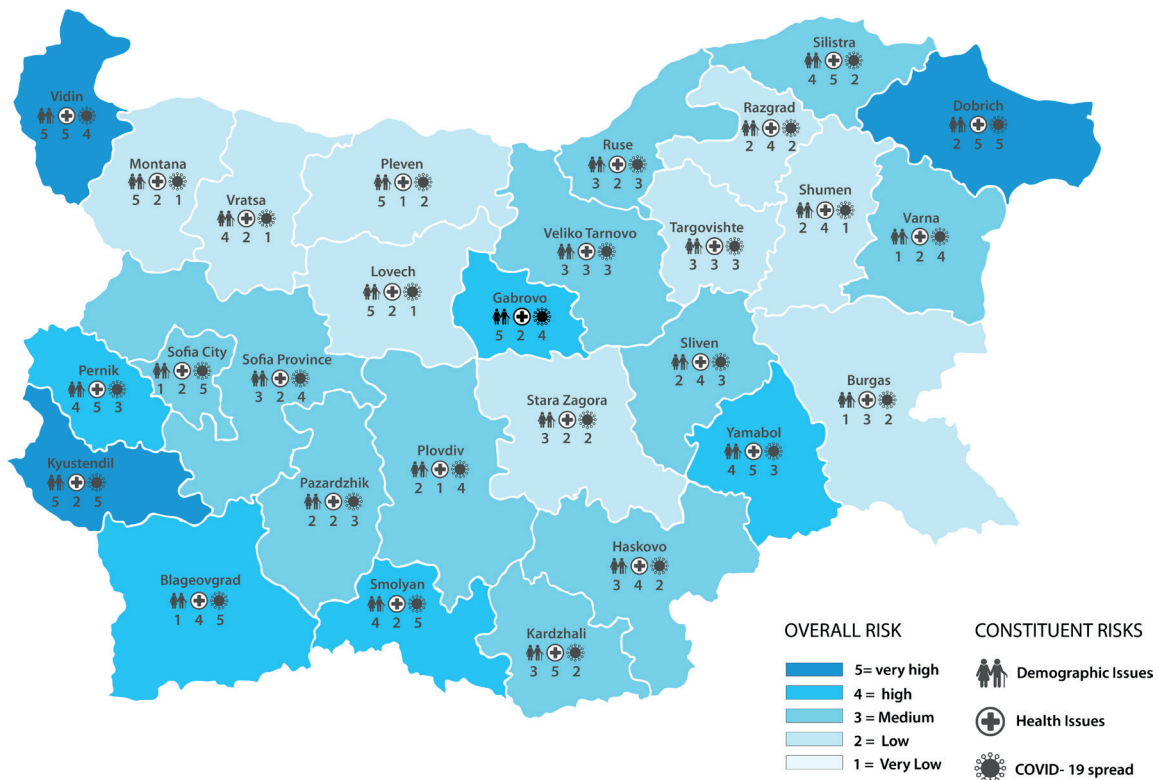
Source: Authors' elaboration based on National Statistical Institute of Bulgaria (2020b).

The COVID-19 pandemic makes the identification, assessment, management, and control of risk a key issue. Local authorities have an important role to play in translating, adjusting, and applying national measures, as well as utilizing their own instruments and means to guide the processes into the right direction. In some municipalities there was strong resistance by local citizens to restriction measures (Kaolinovo, Venets, Bukovlak, Yambol, etc.),[13] with certain ethno-cultural behavioural models often being an important determinant. Forms of civil disobedience related primary to blocking local and inter-settlement infrastructures were observed, accompanied by the boycotting of certain rules and accessibility bans issued by local authorities. Such territorial tensions have negative impacts on local social systems, the supply chains, and certain space-related behavioural stereotypes of citizens (e.g. routes used when moving to workplaces). Those tensions may lead to uncontrollable chain reactions in the mid- and long-term, and suggest the need for adequate territorial crisis/conflict management to control the risk of escalation. On the other hand, in municipalities with greater trust in local authorities initially (e.g. Burgas),[14] people were generally more tolerant to measures enforced by the governance structures. In those areas, no cases of civil disobedience or protests against the pandemic containment measures were registered. Instead, there was a certain balance between health and economic risks, as well as a better utilization of local resources and coordination with health institutions. Further, in some places, there were joint actions of empathy, solidarity, and coordination taken by the local authorities of neighbouring municipal administrations (Burgas Province), while in other places, there was a lack of empathy, mistrust, and mutual accusations of being unable to control the outbreaks (Sarnitsa and Dospat). The practice shows that clustering of municipal administrations in Bulgaria generates positive effects not only in terms of limiting the COVID-19 spread, but also in softening its adverse socio-economic effects.[15]

Municipalities show varying degrees of vulnerability to the COVID-19 crisis depending on their economic profile (with levels of diversification and self-reliance playing a key role) and the resilience of local economies (especially their ability to respond to short-term shocks). One of the indicators that provides the best clues about overall trends and changes is the unemployment rate. At the end of May, the lowest unemployment rate was registered in the capital – 4.4%. Thanks to the large share of services, especially in the high-tech sector and trade, Sofia's economy is more flexible and less affected by the restrictive measures brought about by the pandemic (Sofia Investment Agency, 2020). Slightly increasing unemployment in the capital is related primarily to those working in tourism, culture, sports, and public transport, among other sectors. Unemployment rates are also relatively low in smaller municipalities with sustainable industrial profiles (for example Bozhurishte, Kostinbrod, and Sopot) and with well-developed mining sectors supplying the non-ferrous metallurgy (for example Chelopech, Chavdar, Laki, and Mirkovo) (Institute for Market Economics, 2020). The unemployment rate for May was below 10% in the municipalities with large cities as centres – 5.9% in Plovdiv, 5.8% in Varna, and 6.7% in Burgas. Given the nature of the measures to contain COVID-19, one of the most important factors for mitigating economic impacts and reducing costs is the relative share of professions that can be practiced remotely. The population in large urban municipalities has significantly greater potential for teleworking, with better telecommunications and information technologies at hand. This capacity can be defined as a territorial resource for sustainability in times of crisis, assuming that certain, related external threats can also be recognized before-hand.

Municipalities with traditionally high levels of unemployment before the pandemic maintained their positions due to the low economic activity of their population, the inertial socio-economic development over a long time period, and the limited human and resource potentials. While in the above-mentioned examples COVID-19's impacts are moderate, a group of municipalities with a pronounced tourism-related identity (Bansko, Hissarya, Velingrad, Sandanski, etc.) stands out with increased unemployment, due to the particularly strong blow inflicted by the pandemic on the tourism industry. Those tourism and service-oriented towns do not have a diversified economy, which is why it will be difficult for them to emerge from the looming socio-economic crisis. Paradoxically, before the COVID-19 crisis, they were among the privileged Bulgarian territories characterized by good and stable socio-economic indicators. Tourism is indicated as a priority sector and a factor for alternative employment in almost all municipal planning documents. In this context, it is necessary to rethink the planning process taking into account possible socio-economic scenarios and deviated directions of development that might be caused by similar crisis situations.

While generally considered as one of the greatest achievements for the country's economy over the past 15 years, the integration of the Bulgarian industry into global supply chains was tested with the spread of the COVID-19 pandemic and the stringent measures introduced by many governments. The pandemic and the responses of governments to it caused some serious interruptions in supply chains and had a negative impact on production. Most large manufacturing companies rely on imported resources from countries affected by the disease. Restrictive measures related to the COVID-19 crisis not only disrupted the integrity of production systems, but also destroyed the network and cluster organization of many territorial economic systems. In the case of Bulgaria, all of these circumstances can be directly related to the collapse of the automotive industry, which had shown a strong upward trend in the country before the crisis struck. Many automobile companies are operating in emergency mode with reduced production, but some of them are using their capacity to produce other types of products and components: safety equipment; helmets; goggles; air purifiers; and sensors for

temperature, heart rate, and blood oxygen level (for instance, companies in Smolyan, Plovdiv). Some of the sewing and textile companies (e.g. Tvarditsa, Gabrovo, and Sofia) are also rapidly reorienting themselves towards production needs under the new epidemic conditions (e.g. reusable protective clothing) and changing their specialization.[16] Such flexibility might not only help an enterprise to survive, but also foster its development.

An analysis of the ongoing processes suggests that manufacturing companies with insufficient liquidity are particularly vulnerable. The ability to easily reorient towards new suppliers could be vital, with SMEs experiencing significantly greater difficulties in this regard. A key factor that potentially increases the risk for the Bulgarian economy is the large number of SMEs – over 98% of all companies in the country.[17] They are expected to be most affected by the crisis. Many small companies have gone bankrupt and do not have sufficient funds to restore their activity or production capacity. In a spatial and territorial context, small settlements where SMEs provide the majority of the jobs will be particularly vulnerable and exposed to strong adverse effects. In contradiction to general trend in SMEs, many large companies managed to preserve their business activities and human capital during the first months of the COVID-19 crisis. Such is the case with the copper mining company 'Aurubis Bulgaria' (situated near Pirdop and Zlatitsa, Sofia Province) and 'Devnya Cement' (Varna Province).[18] These companies are reporting a decline in demand, logistics operations, communications, and the use of large common office spaces but continue to be among the biggest donors in their respective municipalities, and participate actively in local community initiatives to fight the coronavirus.

The COVID-19 crisis put local governments to a great test considering the serious financial problems of many Bulgarian municipalities. Many of them had to organize urgent activities that were not planned in the budget. Typical cases in this

regard are settlements populated primarily by elderly people living alone (municipalities from Northwestern and Northern Central Bulgaria). Under the new conditions of the pandemic, the virtues of a developed social economy and volunteering services gained new importance. In some municipalities, regional and local donation funds were set up to support the fight against COVID-19 (raising funds for consumables and materials, medical equipment, protective clothing, recruiting volunteers, etc.). Volunteer centres were also created to activate social actions, which are considered to be of paramount importance during a crisis. In accordance with the national crisis management office, joint activities with local stakeholders were sought to provide information, coordinated actions, and a platform for recruiting volunteers as an essential element of local support (such as in Topolovgrad, Yambol, and Gurkovo).

There are also differences in terms of the measures applied to reduce the negative effects of the pandemic. Some local governments, for example, waived the collection of certain taxes and rents from sites located on municipal land, extended the deadline for payment of local taxes (e.g. Dimitrovgrad, Varna, and Sliven), and allowed citizens to use short-term paid parking zones free of charge during the state of emergency (Sofia). Local authorities also implemented various measures to support SMEs as well as disadvantaged groups. At the same time, in the first half of 2020 there were 91 increases in local taxes and fees and only 27 cases of reductions (Institute for Market Economy, 2020). Those increases were often ungrounded and untimely. A positive trend is that some local authorities are increasingly mobilizing digital tools to monitor and stop the spread of COVID-19 as well as to expand the range of electronic and remote services offered (Sofia, Varna, and Pavlikeni).

The pandemic has empirically revealed two aspects: local governments were faced with uneven socio-economic challenges within their territories (the spatial discourse); and local governments have a crucial role to

play in managing pandemics and other emergency/disaster events (the governance discourse). Both of these aspects suggest for the continuous need of local governments to improve their disaster risk reduction strategies and management actions. Some critical aspects that need to be considered include: the behaviour of key economic entities; fluctuations in businesses producing basic goods and necessities; possible changes in the economic identity of the region; and social structures, attitudes, and responses of citizens. The governance discourse of the COVID-19 crisis encompasses not only timely and efficient coordination between national and local authorities, but also constructive dialogue between regional/local governance, citizens, and diverse stakeholders. By sharing information on COVID-19's differentiated impacts on the local economy, budgets, and living conditions, local authorities might foster better understanding and agreement on crucial issues, including the distribution of public investments aimed to support the post-crisis recovery in line with certain strategic regional/local priorities.

There is a need to strengthen local systems and stabilize the capacity of local authorities to manage healthcare, the economy, and social protection (OECD, 2020). The alternative development of local and regional economies must mobilize the capacity for greater autonomy by rethinking the local model and strengthening sectors such as culture, education, health, and the social economy. It is no coincidence that concepts related to empowering communities, developing community economies, and strengthening territorial identities are increasingly being added to the political agenda. The pandemic and its impacts suggest that this might be the right moment for municipalities to take over the situation for their communities by employing a proactive approach, showing high levels of accountability towards their citizens, and no longer merely positioning themselves as implementers of instructions from the national government (Toto et al., 2020).

Conclusions

This paper studies the socio-economic effects of COVID-19 in Bulgaria to uncover their multidimensional forms and the key factors that drive relevant processes, change the status-quo, and determine the intensity, scale, and persistence of observed impacts. By linking processes at different territorial levels (supranational, national, regional, and local) and scrutinizing diverse socio-economic and political indicators and issues, the mixture of quantitative and qualitative analyses applied in this study reveals the main changes, consequences, and spatial implications caused by the COVID-19 pandemic in Bulgaria.

The pandemic's impactful and multidimensional effects in Europe made finding the right balance between containing the spread of the virus and avoiding an economic crisis a top priority. The different monetary, fiscal, health, and confinement measures tested some of the fundamental visions and values adopted by the EU. The COVID-19 pandemic also reinforced and added to the political agenda some concepts that were (to a large extent) formerly neglected, such as: nearshoring, Europeanisation of the economy, and FDI screening mechanisms. The pandemic and the related need for initiating recovery funds impeded the negotiation process for the new EU budget (for the next programming period, i.e. 2021-2027) provoking lengthy debates and controversies between some member states. As a country integrated into the EU structures and global economic networks, Bulgaria is largely in line with the major European trends in terms of COVID-19 impacts and the types of measures taken to stop the spread of the disease and mitigate its adverse effects. Bulgaria participated actively in the EU decision-making process and negotiated an increase of dedicated EU funds for the new programming period. The country also participates in the joint European tender for the COVID-19 vaccine.

The high degree of openness of the Bulgarian economy creates conditions for the strong and persistent influence of exogenous

factors and rapid transfer of external crises. This makes the Bulgarian economy very dependent on global processes and trends, with limited options of finding its own solutions and ways out of the crisis. The empirical analysis proves that the Bulgarian economy was severely devastated in the first few months of the pandemic in the country (March – May), while some positive trends of recovery have already been registered in June and July. The spatial discourse of the study uncovers the diverse territorial impacts of the crisis, with their size, strength, and expected duration varying according to social and demographic structures, political responses, the sectoral specialization of local economies, and the degree of their integration into the global supply chains. Yet, we detect significant entropy in the system as subjective and random factors often seem to be an important part of explaining the essence of the processes related to both COVID-19 spread and its influences on local economies. While detailed local knowledge and insight is crucial to uncover unknown factors that could shed light on these processes, it often seems insufficient to support more generalized logics on the territoriality of the phenomena (e.g. why COVID-19 spreads in certain areas and spares others with similar characteristics). This makes it difficult to distinguish clear territorial patterns. The analyses demonstrate that the different territorial units and economic entities in Bulgaria are characterized by diverse behavioural models and reactions to the challenges set by the COVID-19 pandemic. The uneven spread of the virus and the diverse spatial scenarios raise inherent geographical questions about the political, economic, financial, socio-cultural, and demographic dimensions of the pandemic and its effects. The asymmetric impact of COVID-19 on communities suggests the need to find effective mechanisms to increase the resilience of territories to health, economic, or social shocks. This requires a more decentralized and regionalized approach. The latter might also help mitigate the social and economic effects of COVID-19, build local social

capital, accelerate the development of social services, and foster more active and goal-oriented local communities. Strengthening local governance in Bulgaria might be one of the most important elements for successful recovery and long-term sustainability. These processes should be supported by the introduction of strong vertical and horizontal coordination mechanisms between the various government structures. Stimulating cooperation between municipalities and regions might avoid the loss of precious resources during a crisis and further strengthen regional and local socio-economic systems.

The COVID-19 crisis underlines the importance of effective local governance, coordination of management decisions at different spatial levels, active citizen participation in local territorial decision-making, and the reassessment of national, regional, and local priorities. In this discourse, the activation and utilization of territorial capitals, as well as the implementation of new approaches, strategies, and mechanisms for overcoming the crisis, is of crucial importance. From this point of view, possible integration and governance clusterization among the Balkan countries aimed to secure the implementation of common measures to fight the pandemic and its devastating impacts could turn into a key instrument for the stability of the region. Common activities in the spheres of information exchange, prevention, and application of restriction measures, tailored to the cultural diversity of the Balkans and available resources in the separate countries, could help ensure regional security and recovery from the current health and socio-economic crisis. In times of pandemic, solidarity and shared responsibility among the Balkan states might strengthen regional cooperation, provide impetus for further joint political activities, and transform the process of regionalization and its socio-economic dimensions.

The ability to find adequate solutions to the complex challenges posed by the COVID-19 pandemic, conceptualize smart place-

based strategies, adopt efficient recovery mechanisms, and build resilient economies will be key to fostering the sustainable development of countries and regions. All these issues are even more important in light of the current situation in Bulgaria, characterized by the persistent spread of COVID-19 and accompanied by nearly two months of massive anti-government protests. The potential coupling of medical, political, and economic crises could turn into a real disaster for the country and cause significant long-term damages to its economy and society.

Notes

1. As per the regionalization used by the WHO, the European region also includes Russia and the Central Asian Republics.

2. https://ec.europa.eu/eurostat/news/news-releases (Eurostat News release Euro indicators).

3. https://www.computereconomics.com/images/default/articles/2788/Figure1new.png.

4. The Stringency Index is based on the Oxford COVID-19 Government Response Tracker, which systematically collects information on several common policy responses that governments have taken to respond to the pandemic. It is calculated on a scale from 0 to 100.

5. This is the overall number of COVID-19 patients in a hospital on a single day.

6. https://www.capital.bg/politika_i_ikonomika/bulgaria/2020/08/25/4106189_zashto_jertvite_na_covid-19_v_bulgariia_dnes_sa/.

7. The Total Business Climate Indicator is a weighted average of business climate indicators in four branches: industry, construction, retail trade, and the service sector. It is based on business surveys that gather entrepreneurs' opinions about the situation and development of their business. The results are in the form of balances which are the difference between the positive and negative answers.

8. https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-performance-country/bulgaria/economic-forecast-bulgaria_en

9. https://www.worldbank.org/en/publication/global-economic-prospects

10. https://www.ebrd.com/news/2020/ebrd-economies-seen-contracting-by-35-per-cent-in-2020-48-per-cent-rebound-in-2021.html

11. Information retrieved from the Government's and National Crisis-management Staff's regular briefings, online media publications, TV (national and regional) reports, and interviews with local governors.

12. Information retrieved from media publications, TV interviews with experts (including representatives of Ethnic Minorities Health Problems Foundation), etc.

13. Information retrieved from TV interviews and reports (national and local media).

14. This example is based both on the electoral behaviour of local citizens in the last two mayor ballots (when the candidate received strong support of 85% in 2015 and 65.8% in 2019) and on recent Internet questionnaire conducted by Sofia University students (subject 'Socio-economic geography of Bulgaria') revealing that the mayor, during his two mandates (2015-ongoing), is trusted by 63.8% of the respondents.

15. Information retrieved from the national crisis management staff's regular briefings, National Association of the Municipalities in Republic of Bulgaria, and TV interviews and reports (national and local media).

16. Information retrieved from corporate websites, media news and reports, and the government and national crisis management staff's regular briefings.

17. https://www.nsi.bg/sites/default/files/ files/publications/StatBook2019.pdf (National Statistical Institute of Bulgaria).

18. Information retrieved from TV interviews with the chief executive officers of the companies.

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Disclosure statement

No potential conflict of interest was reported by the authors.