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FINANCIAL AND INVESTMENT DETERMINANTS OF REGIONAL DEVELOPMENT IN THE FACE OF ECONOMIC UNCERTAINTY

Abstract. The research aims to evaluate the development trends of Ukrainian regions in conditions of COVID-19 spread under the impact of financial and investment determinants. In the article, it is made the profound examination of the impact the restrictive and stimulating tools of public policy at national and regional levels have on the current condition of regional economic systems, in particular in the context of such components as price stability, investment attraction, business climate improvement, lending, capital investment, transparency of budget revenue-forming taxes administration, and stability of public finance. These sectors are most sensitive to public policy measures, particularly in conditions of social turbulence.

The analysis of financial determinants of regional development in conditions of the corona crisis has contributed to outlining the following negative trends: substantial decline in investments in the economy of regions and a falling share of new investment projects are the most negative consequences that will essentially affect the paces of economic growth in the following periods; deteriorating business climate, falling volumes of loans provided to economic entities, and growing share of short-term loans have affected new investment decisions; failure to fulfill the planned rates of the local budgets' main revenue-generating indicators (PIT, local taxes) has affected the volumes of revenues from local budgets, including the investment ones; decline in transfers to local budgets from the public one has affected the funding of regional development programs; the foreign capital outflow occurred not only because of the deteriorating business climate in the country but also the inclusive nature of the COVID-19 pandemics and psychological-emotional factors of impact on the investors' behavior in conditions of uncertainty.

The economic, fiscal, and social impacts of COVID-19 are territorially differentiated. Its various risks are much caused by economic and spatial features of regional development. At the same time, the panic caused by the COVID-19 spread leading to making a range of irrational decisions by financial-economic entities at various governance levels is an essential reason for the defined problems' aggravation. The substantial decline in investments in the economy of regions and a falling share of new investment projects are the most negative consequences that will essentially affect the paces of economic growth in the following periods.

Keywords: regional development, economic uncertainty, COVID-19, finance, investments, determinants.

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ФІНАНСОВІ ТА ІНВЕСТИЦІЙНІ ДЕТЕРМІНАНТИ РЕГІОНАЛЬНОГО РОЗВИТКУ В УМОВАХ ЕКОНОМІЧНОЇ НЕСТАБІЛЬНОСТІ

Анотація. Метою дослідження є оцінка фінансових та інвестиційних детермінант розвитку українських регіонів в умовах економічної нестабільності, зумовленої пандемією COVID-19. Проаналізовано вплив рестриктивних і стимулювальних інструментів державної політики на національному і регіональному рівнях на сучасний стан регіональних економічних систем, зокрема в контексті таких складових, як стабільність цін, залучення інвестицій, поліпшення ділового клімату, кредитування, капіталовкладення, прозорість адміністрування бюджетоутворювальних податків і стабільність державних фінансів. Ці сектори найбільш чутливі до заходів державної політики, особливо в умовах суспільної турбулентності.

Аналіз фінансових детермінант регіонального розвитку в умовах коронавірусної кризи сприяв окресленню таких негативних тенденцій: значне падіння інвестицій в економіку регіонів і зниження частки нових інвестиційних проєктів є найбільш негативними наслідками, які суттєво вплинуть на темпи економічного зростання в наступні періоди; погіршення ділового клімату, падіння обсягів позик, що надаються суб'єктам господарювання, і зростання частки короткострокових позик вплинули на нові інвестиційні рішення; невиконання запланованих показників податкових доходів місцевих бюджетів (ПДФО, місцеві податки), вплинуло на обсяги доходів місцевих бюджетів, включаючи інвестиційні; зменшення трансфертів до місцевих бюджетів від державного вплинуло на фінансування програм регіонального розвитку; відплив іноземного капіталу, який відбувся не лише через погіршення ділового клімату в країні, а й унаслідок впливу психолого-емоційних факторів поведінки інвесторів в умовах невизначеності.

Економічні, фіскальні та соціальні наслідки COVID-19 територіально диференційовані. Різні ризики пандемії багато в чому зумовлені економічними та просторовими особливостями регіонального розвитку. Водночас паніка, спричинена поширенням COVID-19, що призвела до ухвалення низки нераціональних рішень фінансово-економічними суб'єктами на різних рівнях управління, є важливою причиною загострення визначених проблем. Значне зменшення інвестицій в економіку регіонів і падіння частки нових інвестиційних проєктів є найбільш негативними наслідками, які суттєво вплинуть на темпи економічного зростання в наступні періоди.

Ключові слова: регіональний розвиток, економічна невизначеність, COVID-19, фінанси, інвестиції, детермінанти.

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Introduction. Contemporary public policy is designated to modify to some extent the system conditions of regions' development to improve economic efficiency, social peace, and territorial integrity of the country. The past year the economy of Ukraine, as of the vast majority of countries in the world, functioned in economic uncertainty caused by the COVID-19 virus epidemics. Preliminary research of regions' economic development trends in different countries in 2020 shows their unequal dynamics caused by the features of the behavior of authorities, businesses, and population of particular regions (the prediction of which has turned out to be very difficult in pandemics) in addition to macroeconomic restrictions [1—3]. It requires the profound examination of the impact the restrictive and stimulating tools of public policy at national and regional levels have on the current condition of regional economic systems, in particular in the context of such components as price stability, investment attraction, business climate improvement, lending, capital investment, transparency of budget revenue-forming taxes administration, and stability of public finance. These sectors are most sensitive to public policy measures, particularly in conditions of social turbulence.

Scientific research on the regions' development trends in various countries in the corona crisis is quite limited due to minor time lag the fact that the behavior of economic entities in the regions is characterized by a high level of uncertainty, and therefore — complicacy of determination of strong dependence on various factors and mechanisms of external impact. Yet,

nowadays, we can argue that the regions close by their development levels show quite different (sometimes even asymmetrical) trends and effects. It proves the substantial role of behavioristic factors and stipulates the need to study modern socio-economic trends of regional development from non-traditional standpoints.

Literature review. The Report (based on the results of the conducted survey) of the Centre for Entrepreneurship, SMEs, Regions and Cities of the Organization for Economic Co-operation and Development (OECD) regarding the impact of the crisis caused by COVID-19 on regional and local authorities is quite important for our study [4]. The authors prove the asymmetry of socio-economic development effects (in 2020) at different scales: between countries, between the governance levels inside the country, and between individual entities. Meanwhile, the efficiency of managerial actions on overcoming the pandemics consequences in the OECD countries is rather independent of the level of authorities' and financial resources' decentralization. Instead, the coherence of managerial hierarchy, adjustment of horizontal relations (at interregional and intermunicipal levels), and making correct decisions in the stimulation of economic activity based on public investment (regarding the choice of investment directions) are the decisive factors.

The representatives of the McKinsey Global Institute emphasize the role of the current corona crisis as an unprecedented strategic platform for «European economic recovery» [5]. Meanwhile, they focus on substantial conditionality of evaluating the pandemics' impact on the development of certain territories because such estimations do not consider the functioning features of various economic sectors: the demand for some products can be postponed, so the recovery can be expected in early 2021, while the fast development paces of such sectors as e-commerce, address delivery, etc. will fall and they will not compensate losses from traditional activities of the regions. The analysis of the McKinsey Institute proves direct dependence of regions' vulnerability to crisis on their economic profile, stability of the local economy, and stability of tax base.

The financial condition of local governments before the crisis also plays a certain role in the differentiated level of resilience to the corona crisis. Indeed, low debt level and formed powerful tax base of large cities at the end of the 2019 financial year allowed them to cover increasing healthcare and education costs in 2020 and be more resilient to reducing income [6].

Finally, a powerful and efficient mechanism of horizontal and vertical aligning can soften the differentiating impact of COVID-19 on regions. For example, according to S&P [6], the governments of countries with extended aligning systems (like Germany and Austria) and a substantial share of interbudgetary transfers faced the biggest problems with the elimination of growing development misbalances of regions and basic units. Although the aligning systems can help to reduce the regional misbalances, their effect can be limited and depends on the formula of the budgetary resource distribution. Since most aligning systems are funded by allocations from budgets' tax revenues that are certain to face the decline in economic activity, there is a threat of reducing interbudgetary transfers in the aligning system. According to the survey of the OECD Network on Fiscal Relations, most respondents in the OECD countries emphasize the falling volumes of aligning transfers [4].

Up to Andriy Pekhnyk and Yuliia Borzak [7] minimizing the COVID-19 outcomes for the European Union is a very difficult task, because it has to combine two different (and often opposite) goals: 1) to reduce activities and mobility as severely as possible to limit the further spreading of the virus to provide maximal safety and to save lives; 2) to stimulate demand, production and overall economic activity in order to avoid stagnation which would have heavy long-term economic impact because of strong multiplier effect to save economy.

The research of the International Monetary Fund [8] analyzes the policy of a range of countries in public investment in the corona crisis as a response to declining economic activity. Meanwhile, it mentions that most countries have taken into account the lessons of the 2008 crisis and included the investment packages among the first steps of confronting the pandemics. However, the International Monetary Fund considers the investment by the following three priority directions as the examples of the leading practice regarding reacting to the policy that can soften the impact of the crisis on regions and municipalities in all OECD countries: reinforcement of the healthcare

system, digitalization of management, social services, and education, etc., and acceleration of the transition to the low-carbon economy.

Many studies and recommendations for overcoming the consequences of the coronary crisis have been made by domestic scientists. In particular, scientists of the Institute for Strategic Studies investigated problems and proposed mechanisms for reducing economic threats and measures to overcome the negative socio-economic consequences of the coronary crisis [9; 10]. Scientists of the Institute of Economics and Forecasting of the National Academy of Sciences of Ukraine studied issues related to the crisis of the world economy and analyzed the impact of external threats to the corona crisis on the financial system of Ukraine [11; 12]. Problems of the banking sector under the influence of the coronary crisis were studied by Danylyshyn B. and Stepanyuk S. [13]. However, the influence of financial determinants on the development of regions in the conditions of coronary crisis, taking into account behavioral effects, remains little studied.

The research aims to evaluate the development trends of Ukrainian regions in conditions of COVID-19 spread under the impact of financial and investment determinants.

Results. Economic growth is the key characteristic of the regions' development because it is the only one able to secure their sources of growth in the long-term perspective, and therefore—the growing well-being of the population. GRP is its main measuring parameter at the regional level. Yet, the information on the GRP volumes is provided by the State Statistical Service of Ukraine with a considerable time lag compared to other parameters. Therefore, the other general parameters of the regions' development are used to evaluate the regions' economic growth in 2020 like sold products, industrial production, provided services, average monthly wages, retail turnover, and personal income, etc.

The regions' economic growth in 2020 compared to the previous year was characterized by the positive dynamics of the retail turnover despite the quarantine restrictions in retail trade and negative dynamics of real wages, unemployment, and industrial production. Meanwhile, there was a substantial interregional differentiation by the construction growth paces (from 63.5% in Hersonska oblast to 150.7% in Hmelnytska oblast) (*Table 1*). The regions (Kyiv, Lvivska and Odeska oblasts) recently demonstrating high paces of construction growth, did not cut them in the corona crisis.

Table 1

The regional dimension of economic development of Ukraine in 2020 (in % to 2019)

Oblasts	Real wages index, 2020 in % to 2019	Retail turnover index, 2020 in % to 2019	Industrial production index, 2020 in % to 2019	Construction index, 2020 in % to 2019
Ukraine	97.2	107.8	94.8	102.8
Hersonska	95.8	104.0	102.8	63.5
Zaporizka	97.0	115.5	91.2	64.7
Kirovohradska	95.5	110.8	101.7	64.8
Zhytomyrska	95.7	106.8	97.5	75.0
Zakarpatska	93.0	95.5	90.1	76.6
Mykolayivska	97.0	104.3	97.8	77.6
Dnipropetrovska	97.0	109.9	86.8	84.7
Harkivska	98.3	105.4	95.4	91.8
Rivnenska	97.5	103.1	97.1	91.8
Vinnytska	95.1	103.8	94.1	93.2
Luhanska	100.4	105.0	89.0	94.3
Kyiv	99.3	109.0	97.1	97.1
Ternopil'ska	101.2	109.0	86.2	99.4
Chernivetska	100.0	101.6	85.5	99.9
Ivano-Frankivska	96.8	103.7	92.9	102.0
Volynska	98.0	114.1	95.7	104.2
Poltavska	95.9	110.2	99.8	104.3
Sumska	97.3	104.4	95.3	106.4
Cherkaska	95.0	106.3	96.4	114.7
Kyivska	93.0	116.7	96.8	117.8
Lvivska	96.7	103.0	104.0	118.2

Table 1 (continued)

Oblasts	Real wages index, 2020 in % to 2019	Retail turnover index, 2020 in % to 2019	Industrial production index, 2020 in % to 2019	Construction index, 2020 in % to 2019
Chernihivska	95.2	112.8	92.7	131.8
Donetska	92.9	103.1	96.2	140.3
Odeska	98.8	105.9	99.4	141.8
Hmelnytska	99.9	111.7	97.5	150.7

Source: according to the author's calculations, based on the data from the State Statistical Service of Ukraine.

The obtained results require a more profound analysis of the development trends in the economy of Ukrainian regions and detecting its features across such financial determinants of regions' sustainable growth as price stability, investment attraction, business climate improvement, stability of public finance, transparency of budget revenues-generating parameters, and lending.

Price stability. The corona crisis is characterized by an extremely high level of uncertainty regarding its duration and the volume of shock generating the inflation expectations. Even the first predictions of economic situation development in the country in pandemics envisage the sharp demand growth, and therefore — the increase in prices for several groups of goods and services. Yet, a certain destabilization at the first stage of implementing the quarantine restrictions quickly faded, and the inflation level was relatively low at the end of the year. The consumer price index in December 2020 against the same period of the previous year was only 105%. Normally, a certain hryvnya «strength reserve» is deemed to be the cause of this situation. It was formed in 2019 — early 2020 driven by the following factors:

- the increase of international reserves of the National Bank of Ukraine (NBU), which amounted to \$ 26.6 million in March 2020, and the decrease of the share of the country's foreign debt [10];
- hryvnya appreciation against other currencies;
- growing capitalization and trust in domestic banks (growth in the authorized capital volume by a third) and exclusion of weak banks from the market amid the bank system recovery;
- falling prices for energy products on global markets.

Yet, it is worth emphasizing the behavior factors of low inflation like the lack of real prognosis regarding the development of the situation in business and residents becoming more «careful» in purchase and more invested in determining the priorities of consumer expenditures. They are caused inter alia by falling household income. The problem is aggravated by the so-called industrial deflation (price cut for main product groups, first of all, the export-oriented ones) that started last year (in annual terms, the prices in the domestic industry fell by 2.2 in 2019, the cost of extractive products thereby falling almost by 20% and processed products — by 5%).

Even though the quarantine restrictions will be in place in the future, the companies in the industry poorly adapt to new operation conditions, sell their businesses, and look for new and more profitable investments. There is the «trap» effect — the situation, when the owners, having invested money, some endeavors, and time in a project, decide to keep on doing it for the sake of their initial investments. The owners reevaluate the cost of their businesses based on the «endowment effect» (they consider all efforts invested in the creation and development of their businesses) regardless of obvious problems in the industry development in the future.

There wasn't a strong differentiation of the consumer price index in the period of crisis across regions, but a strong index differentiation by the groups of products was observed. The prices for industrial goods — clothes and footwear — fell in all regions (consumer price index for clothes and footwear was 92.7%). It is worth mentioning that there was a growth in the consumer price index for restaurant and hotel services, yet it didn't prevent the industry from substantial losses during the quarantine restrictions.

The prices grew the most for the public utilities — the consumer price index was 113.6%. Currently, the competencies on tariff-setting are divided between the National Commission on Public Regulation in Energy and Public Utilities and local governments. The decentralization has only added to the central authorities' reluctance to interfere with problems accumulated in the

public utilities sector, which entirely transfer them to local governments. The latter often settle unreasonable tariffs (for example, the consumer price index for public utilities in the capital city is 103.8%, in Zakarpatska, Chernivetska, and Ivano-Frankivska oblasts it exceeds 120%, while the average wages in these oblasts are about 1.5 times lower than in Kyiv). In fact, local governments are put in situations, when they just have to make decisions within their interests, in the first place, and only afterward — within the society interests. Making decisions irrational from the viewpoint of the community in the corona crisis just aggravates already complex social conflicts.

Investment attraction and business climate improvement. Due to quarantine restrictions, domestically-oriented industries suffered the greatest losses in the corona crisis, including tourism, transport, catering, and hotel business. Secondary effects of falling consumer activity of the population have impacted financial activity, real estate operations, retail trade, and manufacturing, etc.

The most complicated situation was with small and medium businesses: 277,000 individual entrepreneurs (IEs) suspended the activities in the first months of implementing the quarantine measures as of April, 27 [14]. Across sectors, these are 211,300 IEs operating on the markets, 14,700 IEs in planned medicine and dentistry, and 8,400 IEs in tourism. The number of newly registered IEs decreased almost by a third (if in 2019, the number of registered IEs was about 5,000 weekly, in the quarantine, it was less than 1,500 IEs).

To improve the business climate on the governmental level, a range of legal acts was adopted in several stages:

- since the beginning of the introduction of quarantine measures, economic entities have been exempt from sanctions for tax law violations, and the moratorium on tax and other inspections as well as two-month land fee and non-residential tax relieves have been established;

- IEs were exempt from the unified social security tax (March — April, 2020), and the extension of the transaction register (cash register) application was postponed for three months. In 2020, local governments were granted the right to make amendments to already adopted decisions on reducing the single tax rates. Meanwhile, the land fee and non-residential tax relieves were reduced from two to one month;

- afterward, the period of non-application of sanctions for tax law violation was prolonged, and the opportunity of reducing the rates by local governments was extended from single tax to land fee and non-residential property tax (in 2020).

Despite the implemented measures of small and medium business support, the latter was affected the most because the major share of IEs in Ukraine operates in the industries the most stricken by the pandemics (trade, hotel business, catering, etc.). Moreover, poor efficiency of public policy measures can be explained by the small and medium businesses' «habit» to make irrational decisions or even deliberately violate the regulations. The behavior is the reaction to the low level of situation predictability for the business caused by continuous changes in legislation.

To improve the situation and expand the financial capacities of businesses, the Government with the assistance of the European Union adopted the program «Affordable Loans 5—7—9%» directed at support of lending the micro, small, and medium businesses in quarantine. As of 4 September 2020, about 2 800 loans were granted for a total of UAH 6.5 billion: 57% — in agriculture; 15% — industrial processing, 15% — trade and production. Harkivska (9%), Lvivska (7%), and Kyivska (7%) oblasts (Cabinet of Ministers of Ukraine) are the leaders by the volume of concluded agreements (according to National Bank of Ukraine).

A limited number of types of businesses that are entitled to loans, a complex list of requirements to entrepreneurs, and formal bureaucratic requirements of banks regarding the reporting, documentation, business models, risk level, and other criteria are the problems faced by the businesses when applying for loans.

The negative impact of the corona crisis has affected employment. However, if the growth (fall) in the official employment in January — September 2020 was 93—96% for most regions compared to the same period of the previous year, the growth of informal employment ranged from 67.3% to 129% across regions (*Fig. 1*). Sharp informal employment growth in many countries shows the growing capacity of the shadow economic activity and the bankruptcy of a range of entrepreneurial structures.

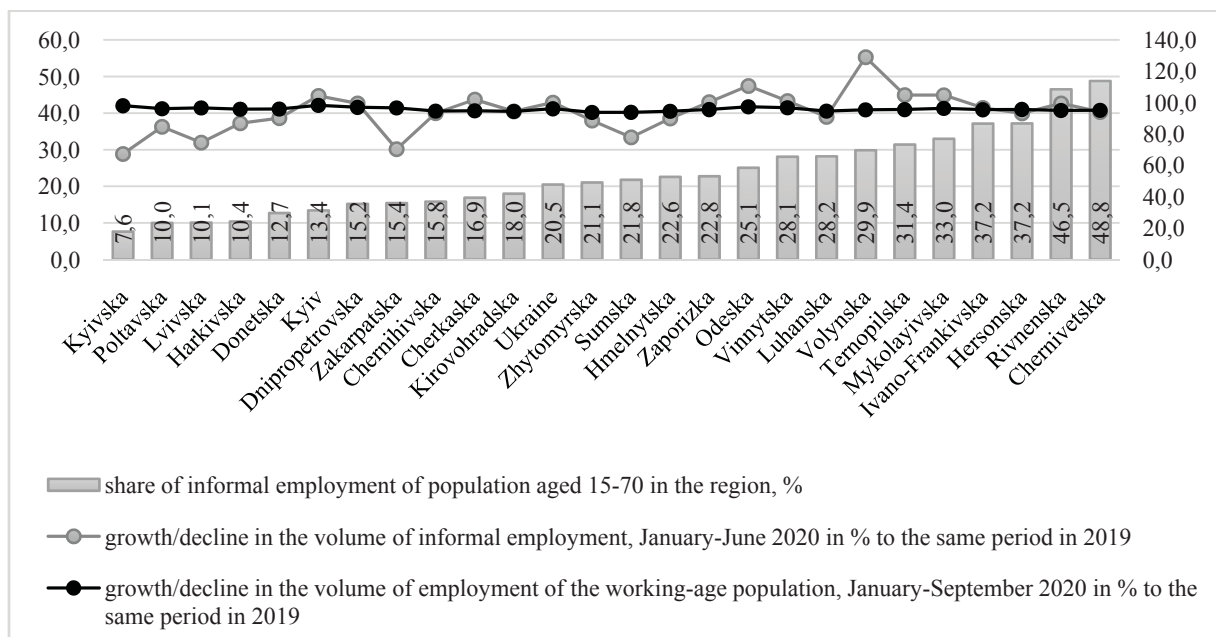


Fig. 1. Formal and informal employment across regions, 2020 in % to 2019

Source: according to the author's calculations, based on the data from the State Statistical Service of Ukraine.

The challenges in doing business have affected the business climate and investment attraction. The pandemic has blocked or slowed down the implementation of already ongoing investment projects with foreign capital in Ukraine. In three quarters of 2020, the volume of foreign direct investment in Ukraine declined by \$ 5234 million. Industrially developed regions were affected the most — Kyiv (a \$ 2276.5 million decline) and Dnipropetrovska oblast (a \$ 1501.5 million decline) (Table 2).

Table 2

Dynamics of investment activity and bank lending to residents in Ukrainian regions in 2020

Oblasts	foreign direct investment per capita in the 4 th q. of 2020, \$	absolute growth of foreign direct investment in the 4 th q. of 2020, mln \$	capital investment, 2020 in % to 2019
Vinnytska	259.9	-203.1	67.2
Volynska	239.3	-77.7	82.2
Dnipropetrovska	1 501.5	-700.1	69.8
Donetska	437.7	-406.9	68.3
Zhytomyrska	266.0	-83.1	74.2
Zakarpatska	193.2	-14.5	58.2
Zaporizka	835.2	-329.5	70.8
Ivano-Frankiv'ska	287.6	2.9	51.9
Kyivska	666.9	-122.7	48.8
Kirovohrad'ska	136.7	-21.4	83.3
Luhanska	73.0	-13.1	67.3
Lvivska	537.1	-324.7	49.9
Kyiv	5 326.0	-2 276.5	63.6
Mykolayiv'ska	241.3	2.4	53.8
Odeska	465.9	-225.0	72.1
Poltavska	1 274.7	-123.4	85.4
Rivnenska	182.9	-29.4	56.2
Sumska	319.5	-40.3	65.5
Ternopil'ska	41.5	-2.8	58.1
Harkivska	324.2	-103.6	66.9
Herson'ska	156.7	-31.3	42.5
Hmelnytska	75.6	-60.7	89.8
Cherkaska	150.2	-34.0	60.5
Chernivetska	60.0	-8.7	54.1
Chernihiv'ska	462.2	-6.7	59.0

Source: according to the author's calculations, based on the data of the State Statistical Service of Ukraine and National Bank of Ukraine.

Unfortunately, the prospects of deep recession have urged foreign companies to revise the prospective projects. The period of uncertainty caused by the corona crisis has lasted for over a year, so it is natural for investors to avoid «sudden movements» before the situation becomes at least a little bit predictable. In such conditions, the investors choose the strategy of conservative investment that includes savings accounts, deposits, gold, etc. In a crisis, the business loses its stability, and the purchasing power decreases. Therefore, there is a great risk for new investment.

Under the corona crisis impact, the businesses have to develop their behavior in complete uncertainty about the future — duration of quarantine restrictions, accessibility of transport logistics, the model of authorities' behavior, the health of the companies' personal, etc. The uncertainty creates conditions for irrational decisions of business entities. The problem is suggested to be solved using the in-depth understanding of irrational (e.g. the unpredictable behavior of a counteragent) with the view to reveal its patterns and actions motivation [8].

The business climate should be improved in terms of stimulating the development of digital technologies to adapt businesses to quarantine restrictions, development of online sales channels and online services, use of existing productive and infrastructural capacities to produce new goods, improvement of digital competencies and individual skills of staff, search for new sources of funding and investment decisions, etc.

Lending and capital investment. The deteriorating financial condition of economic entities in conditions of uncertainty has aggravated the problems of the monetary domain and opportunities of investment lending. Compared to the previous year, in 2020, the volumes of banks' lending to residents fell in most regions. The situation was the worst in Eastern regions, namely, in Dnipropetrovska oblast, the lending decreased by 75.4% in 2020 against 2019, Donetska — by 33.8 %, Luhanska — by 66.6%. Meanwhile, the dynamics was positive in Kyivska (+31.3 %), and Lvivska (+13.9 %) oblasts (see *Table 2*). Almost half of the loans were granted for a short term, which shows the negative perspectives of investment lending. The share of nonperforming loans in the banks' portfolio increased compared to the previous year (49.3% as of 1 May 2020). The worst dynamics of banks' lending was in the II quarter caused by imposed strict quarantine measures. Yet, in the III quarter, the banks' positive expectations regarding its recovery justified, in particular, due to further decline in the lending rates, loan repayment holidays, and debt restructuring for borrowers affected by the quarantine restrictions.

The crisis situation has substantially affected the investment activity in the country. The capital investment growth pace was 64.6% as of 1 October 2020 compared to the same period of the previous year (see *Table 2*). The industries oriented at service delivery (transport, leisure and entertainment, hotel business) faced the biggest capital investment reduction. Demand stimulation for particular goods and services has caused investment growth in such industries as postal and courier services or pharmaceuticals, but the volumes are insignificant.

The funds of companies remain to be the key source of capital investment. Although, their share in the structure decreased due to deteriorating financial results of the companies' activities. Capital investment increased only in terms of funding from the public sector. As far as the main burden of quarantine restrictions has fallen on the revenues of local budgets, in 2020, capital investment from local budgets per capita was higher in most regions than from the public budget. The high asymmetry level (max. in Kyiv — USD 40.2 per capita, min. in Luhanska oblast — USD 2.7 per capita) indicates the growing interregional differentiation under the impact of the corona crisis (*Fig. 2*).

Behavioral factors had a great impact on making investment decisions in the pandemics: uncertainty, the impact of information communication, and wrong perception of reality. The loss aversion effect changes the investor's behavior in crisis towards risk minimization (aversion to crucial decisions, i.e. a trend to avoid extreme decisions) and criticism of results (maximum impartiality and criticality in calculating the outcome indicators).

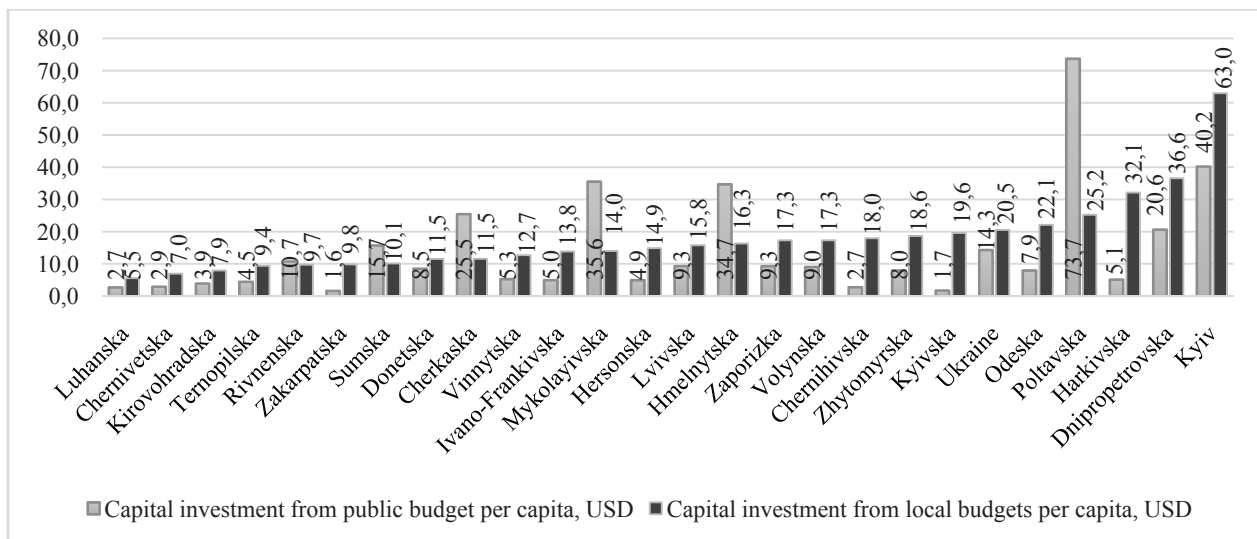


Fig. 2. Capital investment from public and local budgets in 2020, USD per capita

Source: Authors, based on the data from the State Statistical Service of Ukraine.

It becomes important for an investor to take into account the patterns of human behavior, the irrational nature of individuals, and its impact on decision-making. To find the systemic deviations in the model of irrational decision-making, the following issues should be taken into account in the first place:

- it is difficult to predict the further investment activities in conditions of the corona crisis due to the use of limited unreliable information;
- investors are biased in estimating the expected results and consider the final result not from the viewpoint of the general level of wellbeing but gains and losses;
- investors can make various investment decisions depending on the form of problem specification («framing effect»).

Therefore, the investors' behavioral models have changed under the impact of the corona crisis and uncertainty regarding its further development: they have become more conservative («certainty effect» or preferring the smaller but more guaranteed income). It is confirmed by the growing share of the short-term bank loans, limited investment in activities that stipulate social contacts, and a falling share of new investment projects. Meanwhile, new possibilities have emerged for investors under the impact of the corona crisis and quarantine restrictions. The new segments for investment have emerged, in particular, pharmaceuticals, online services, medical services, etc. The stock price of companies with good prognosis and perspectives of recovery in the post-crisis period (small debt, stable and adaptive business model) has fallen, so the investors have an opportunity to buy cheaper stock.

The experience of the previous crisis in 2008 shows that public investment should step forward in conditions of essential economic activity decline. Meanwhile, the research of the International Monetary Fund [8] notes that public investment directed in healthcare, management digitalization, social services, education, and transition to the low-carbon economy can become the most efficient in the strategic dimension. Ukrainian Government also used the practice of public investment intensification, and in March 2020, the President announced the start of the investment project «Grand Construction» funded by state and local budgets, Road Fund, and State Regional Development Fund. Yet, unlike most developed countries, hard infrastructure objects — roads, schools, kindergartens, and outpatient clinics — rather than the healthcare system (including the improvement of its capacity to fight the pandemics) or social services digitalization have become the major investment objects. The efficiency of investment needs detailed estimation. The OECD research of the public investment quality [15] outlines the following efficiency criteria: orientation on complex projects requiring co-funding from public and local budgets (and businesses, if possible), cooperation between the levels of governance (public — regional — local), high technology, and application of innovative low-carbon technologies. It is worth adding that over 50% of all projects implemented in 2020 in the OECD countries at the expense of taxpayers had a strong environmental focus.

Public finance stability. Local budgets play an important role in securing the regions' economic growth. The local budget's financial stability characterizes the state of revenues and expenditures of the budget that guarantee the public authorities the opportunity of complete and timely fulfillment of their obligations, unlike the other budget levels.

Substantial differentiation of the regions by the share of transfers in local budgets (3.7 times, min 14.8 — Kyiv and max 54.8% — Chernivetska oblast) shows considerable differences in the regions' budget revenues in terms of needs for expenditures according to budgetary authorities.

Yet, it is worth mentioning that the growth of local budgets' revenues with transfers was much lower in 2020 against the previous year than the growth of local budgets' revenues without transfers (average rate in Ukraine — 84.1% against 103.7% respectively). Unfortunately, it is not because the crisis situation does not affect the forming of local budgets' revenues but due to the fact that it is the result of the Government's reduction of budget programs because of the establishment of the Fund Counteracting the Acute Respiratory Infection COVID-19 Caused by the Coronavirus SARS-CoV-2 and its Consequences. The losses of USD 0.37 billion are caused by the falling amount of money in the State Regional Development Fund by USD0.1 billion, subventions for holding the elections of local councils' members and heads of villages, towns, and cities of USD 440,000, subventions for assistance for the development of consolidated territorial communities (CTCs) of UAH 800,000, subventions for improvement of social protection of teaching staff at general education institutions of UAH 590,000, etc.

Evaluation of the local budgets' financial stability with the application of respective coefficients has contributed to revealing the positive trends in the change of the financial stability type towards the normal and absolute for most regions in 2020 compared to the previous year. Yet, it is worth mentioning that the changes were caused by the reduction of targeted transfers from the public budget rather than growing revenues of local budgets. It is confirmed by a slight change in the share of tax revenues in income (without transfers) of local budgets in 2020 compared to the previous year (91.7% against 90.1%).

Conclusion. The analysis of financial determinants of regional development in conditions of the corona crisis has contributed to outlining the following negative trends:

- substantial decline in investments in the economy of regions and a falling share of new investment projects are the most negative consequences that will essentially affect the paces of economic growth in the following periods;
- deteriorating business climate, falling volumes of loans provided to economic entities, and growing share of short-term loans have affected new investment decisions;
- failure to fulfill the planned rates of the local budgets' main revenue-generating indicators (PIT, local taxes) has affected the volumes of revenues from local budgets, including the investment ones;
- decline in transfers to local budgets from the public one has affected the funding of regional development programs;
- the foreign capital outflow occurred not only because of the deteriorating business climate in the country but also the inclusive nature of the COVID-19 pandemics and psychological-emotional factors of impact on the investors' behavior in conditions of uncertainty regarding the nature and duration of the corona crisis.

The panic caused by the COVID-19 spread leading to making a range of irrational decisions by financial-economic entities at various governance levels is an essential reason for the defined problems' aggravation.

Summing up, it is worth mentioning that the economic, fiscal, and social impacts of COVID-19 are territorially differentiated. Its various risks are much caused by economic and spatial features of regional development. The following regions turned out to be the most affected (by the disease spread paces and the number of patients): the regions that are territorially bordering the EU countries, where the residents are oriented at employment abroad; oblasts with the lowest socio-economic development parameters (which can be explained by worse condition of regional healthcare systems and lower wellbeing level); regions characterized by high economic activity

concentration, in particular, the cities. Economic specialization and level of inclusion in the global value chains are equally important factors of regional development in conditions of the COVID-19 pandemics.

The implemented decentralization has generated the situation, when regional and local authorities rather than the public ones have turned out to be at the forefront of crisis management as those bearing responsibility for the most important aspects of measures taken to contain the spread of pandemics, healthcare, social protection, and economic development, etc. Yet, the attempts of public authorities to shift to local governments the responsibility for the course of events and meeting the healthcare system's and residents' needs in conditions of the corona crisis has led to substantial opposition at the first stage. As a result, it had become possible to somewhat lower the tension degree and proceed to the development of critically important coordination between the levels and branches of governance only by the end of the year.

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