ECONOMIC RESEARCH INSTITUTE
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ИНСТИТУТ ЗА ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ НА БЪЛГАРСКАТА АКАДЕМИЯ НА НАУКИТЕ

ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ

ECONOMIC STUDIES

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CONTENTS

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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INCLUSIVE DEVELOPMENT – NATURE, ASPECTS, MEASUREMENT[3]

The article makes a critical analysis of the understanding of the concept of "inclusive development". It is noted that this term and its synonyms became very popular and fashionable at the beginning of the 21st century, which led to their overuse and, thus, in a sense, to their deprivation of content. A critical review has been done on indicators and indices at a national and regional level. The relevance and necessity of applying a clear methodology for the assessment of inclusive development are justified in the light of the analysis that was made. A methodology for defining and assessing inclusive regional development that meets necessary requirements is proposed and justified by the authors of the study. It is based on understandable and easy to define criteria for the assessment of inclusive development. Finally, some general results and conclusions from the methodology are presented.
Keywords: inclusive development; methodology; Bulgaria
JEL: R11; Q57; R58

1. Overview of the Frameworks Related to the Understanding of Inclusive Development

The terms "inclusive development" or "inclusive growth" comes into use at the beginning of the 21st century when a number of organisations, including the World Bank, identified that growth, particularly in developing countries, did not always lead to a reduction in inequality and increase of living standard.[4] The Organisation for Economic Cooperation and Development (OECD), proposes a general concept to measure the so-called inclusive development, namely to seek a new approach and rethinking of economic growth that aims to complement the accepted model based only on GDP assessment, so that the socio-

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[4] In the article, the terms "inclusive development" and "inclusive growth" are used as synonyms.

economic impact of this growth is also taken into account (OECD, 2015). In this sense, achieving inclusive growth implies taking into account its equitable distribution in society.

The understanding of inclusive growth rises two questions – who benefits from economic growth and what outcomes do we want to achieve with this growth. Generally, inclusive growth is associated with two requirements – to provide an acceptable rate of development on the one hand and to reduce inequality on the other (Kraay, 2004). In other words, inclusive development is that which affects all people and fits into the understanding of a prosperous economy coupled with a more equitable society.

Inclusive growth is a somewhat "stretchy" term that is interpreted by many different organisations, explained differently according to the objectives of those organisations and institutions. Some place more emphasis on broader notions such as well-being, others include environmental sustainability. In other words, the adoption of one or another definition of inclusive development by different organisations and institutions is directly linked to the policies and measures they propose and fund. For example, according to the EU's Europe 2020 strategy, inclusive growth is primarily about promoting economies to achieve lower unemployment and higher employment rates, which in turn are expected to lead to more effective social and territorial development (European Commission, 2010). Inclusive growth, according to the Asian Development Bank (ADB), is primarily related to social criteria – employment, poverty, inequality, gender equality (McKinley, 2010). According to McKinley, the ADB's growth objectives and the concept of inclusive development are considered from a narrow and broad point of view, respectively. In a narrow sense, the concept is related to economic growth, increasing opportunities and improving the range of economic outcomes in larger population groups. The broad interpretation relates to inclusive development, where the focus is on non-financial dimensions of well-being such as good health, literacy, which are the result of human development but not a direct result of economic growth.

Ranieri & Ramos (2013) from the International Policy Centre for Inclusive Growth at the United Nations Development Programme look at various definitions and highlight that there is no consensus on the concept and how to operationalise the term in practice. According to the authors, the concept has emerged in the context of a change in the perception of development. It encompasses a set of different but somewhat related trends in understanding about the interaction between growth, poverty and inequality. Ranieri& Ramos present a table with 15 authors and summarise what criteria they associate with the concept of inclusive growth (Ranieri, Ramos, 2013, p. 18). According to the analysis, the most frequently used terms are inequality – 11 times; Poverty – 9 times; Growth – 6 times; Employment – 6 times, Opportunities for Development – 3 times, and Social Protection – 2 times.

A key question in establishing a definition of inclusive growth is how to assess the interrelationships between the elements that define growth and the changes they undergo – if it can be established whether changes in inclusiveness are the result of growth. A related issue is how to perceive inclusive growth policy in cases where there is a deterioration in one or more indicators of inclusion due to external shocks, to what extent inclusive growth policy needs to take account of changing conditions as a result of such external crises.

Problems also arise, according to Ranieri & Ramos (2013), with measuring correctly the contribution of a growth factor to inclusion indicators. For example, how to measure the contribution of one factor (indicator) other things being equal, i.e. no change in other indicators. Averaging the contribution of the components of inclusion does not necessarily yield the total inclusive growth score. The relative importance, additionally and opposite effects of individual factors need to be taken into account.

Over the last decade, the issue of the need for new indicators, that will evaluate the growth that benefits all people and is in line with environmental protection and carbon reduction, has been debated alongside the issue of inequality. The concept of so-called green growth and, therefore, a green economy is being developed (OECD, 2011). These ideas build on the understanding of the need for sustainable development known since 1987. Green growth is linked to the idea of a green economy, oriented towards increasing welfare and social justice and at the same time reducing environmental risks.

A number of international institutions are proposing concepts, strategies, programmes to achieve the desired new type of growth. The UN goals could be considered the most ambitious and comprehensive. In 2000, the UN adopted the "Millennium Declaration" and accordingly to development goals in the three areas – economic, social and environmental. Years later, analyses have shown that some progress has been made, but the goals thus formulated have been criticised because they are difficult to measure and assess, whether they were actually met as well as how time-limited and measurable they are (Attaran, 2005). In 2015, UN member states agreed on a new Post-2015 Development Agenda. The Agenda encompasses 17 Sustainable Development Goals and 169 sub-goals, means of implementation, tasks of global partnership and follow-up and review, with goals primarily covering different aspects of sustainable development.

In the European Union, the concept of a bioeconomy is popular and it is directly linked to inclusive and sustainable development. Bioeconomy includes sectors that produce and use organic products. It proposes measures to improve the management of renewable biological resources, opening up new and diversified markets for food and bio-based products. It is seen by the European Strategy Europe 2020 as a key element for achieving smart and green growth (Strategy, 2018).

In terms of the regional economy, an important advantage of the bioeconomy is that most of its industries are mainly based on domestic resources and are relatively weakly dependent on supplies from external markets. In this sense, the development of the bioeconomy makes it possible to achieve inclusive development on the basis of specific endowments and features at a regional level. That is the reason the bioeconomy development in Europe to be considered to have great potential to sustain and create economic growth and jobs, reduce dependence on fossil fuels, improve the economic and environmental sustainability of primary production and manufacturing industries (see details for results in EU and Bulgaria in Kotseva-Tikova, Mochurova, 2021).

Despite efforts on an international level, there are no significant changes and improvements in the definition of inclusive growth. Some authors have criticised the concepts listed for being merely "empty" terms that, in practice, do not differ in substance (Turok, 2010; Lee, 2019). According to Lee (2019), the concept of inclusive growth (the concern with the rate

and type of growth) has become "a new mantra of economic development". At the same time, he highlights that there are problems with both the concept of inclusive growth and the quest to achieve it in practice.

While some policymakers are enthusiastic about implementing measures for such growth, others believe it is merely an empty term that can do little to influence development policies. A number of conceptual issues remain unresolved too; the term is vague and difficult to operationalise, there is little evidence that it is workable in practice and there is too much reliance on the ability of local authorities to initiate or support growth.

Torok (2010) discusses whether inclusive growth is just a mirage and under what conditions it can be a meaningful goal for economic policies. The author stresses that precise definitions are needed and draws attention to the differences between absolute and relative poverty, between equal opportunities and achieved outcomes. However, Lee (2019) argues that while not ideal, an inclusive growth model is better than one that completely ignores distributional issues of wealth.

To the best of our knowledge, the term inclusive growth is perceived and disseminated in Bulgaria from the English economic literature. This term is adopted in a number of official documents – for example, the Bulgarian translation of "EUROPE 2020: A Strategy for Smart, Sustainable and Inclusive Growth", also the Regulation on Inclusive Education of the Ministry of Education and Science. The term is also used by the National Statistical Institute in the statistics of indicators for the Europe 2020 Strategy. According to the authors of this study, the word "inclusive growth" reflects accurately enough the idea of development that fairly benefits all.

The theme of achieving inclusive growth has recently become topical in Europe, where regional research is mainly at the level of pilot projects. For example, the 2017 ReSSI project "Regional Strategies for Sustainable and Inclusive Territorial Development" is funded by the EU and reflects the main priorities of the Europe 2020 Strategy (achieving smart, sustainable and inclusive growth) (ESPON, 2017). The strategy addresses the challenges facing the EU since the 2008 financial crisis, but does not propose specific mechanisms through which such growth can be achieved. As noted by the authors of the ReSSI project – it provides a general characterisation of most definitions of economic development, which often focus on the desired end state rather than the process by which economic development is to be realised. The lack of specificity about the processes through which economic development can be achieved leads to inadequate guidance to policymakers who need a roadmap of the policy instruments to be used. Given this limitation, the ReSSI project explores the practical side of the processes of 'doing' smart, sustainable and inclusive development.

Another aspect of inclusive growth concerns the potential benefits of reducing poverty and inequality for achieving growth. Empirical researches, including a study by the International Monetary Fund (Ostry, et al., 2014), suggests that inequality can, in some cases, be a brake on growth. Reports cited in Lee (2019), part of an inclusive growth agenda, also make similar claims. For example, the Royal Society Commission on Inclusive Growth (RSA, 2016) argues that "reducing inequality and deprivation can itself lead to growth". Alongside this, inclusive growth highlights the important links between economic and social policy. These linkages are clearest in employment and skills policies, where investments in skills

development can achieve the dual objective of increasing individual well-being while improving overall economic outcomes. This aspect also extends to other policy areas, including education, health services and social care, and concerns mainly the normative economic approach. In this case, the contribution of other public services to growth must be considered, but also the links between society and the economy.

In recent years, inclusive growth has focused on cities for several reasons. First, there is a trend in many countries for national governments to give new powers and responsibilities to local authorities in urban areas. Other reasons are structural changes and globalisation. According to Lee, paradoxically, these make cities appear to be important economic entities, especially in the post-industrial era. It is in cities that inequalities are most visible and the idea of seeking inclusive growth on a regional level seems justified.

At the same time, it should be underlined that it is not easy to define this type of growth both on national and local levels, which makes it difficult to operationalise the concept; it remains unclear exactly what needs to be done to achieve it. There is also over-confidence in the ability of local authorities to manage their local economies in this direction. There are concerns that this is just a placebo that promises to address two difficult problems – low growth and high inequality – but does little to address them. In reality, such vague concepts lead in practice to unfocused policies.

Unanimously, policymakers around the world are calling for inclusive growth, including the International Monetary Fund, which recognises that the topic is relevant. Events such as the Arab Spring, the growing divide between the financial elites on Wall Street and the so-called "Wall Street vs. Main Street" in the developed economies, global inequality and the world's three-speed economy are bringing the issue of inclusive growth to the forefront of policy debates.

An International Monetary Fund team, Rahul Anand, Saurabh Mishra, and Shanaka J. Peiris (2013), accepted and estimated a common measure of inclusive growth for emerging markets by integrating data on economic growth and income distribution over three decades. GDP at purchasing power parity per capita is used. A microeconomic concept of social mobility function is applied, the concept of pro-poor growth is adopted. It focuses on inequality and distinguishes between countries where per capita income growth is the same for the top and bottom of the income pyramid.

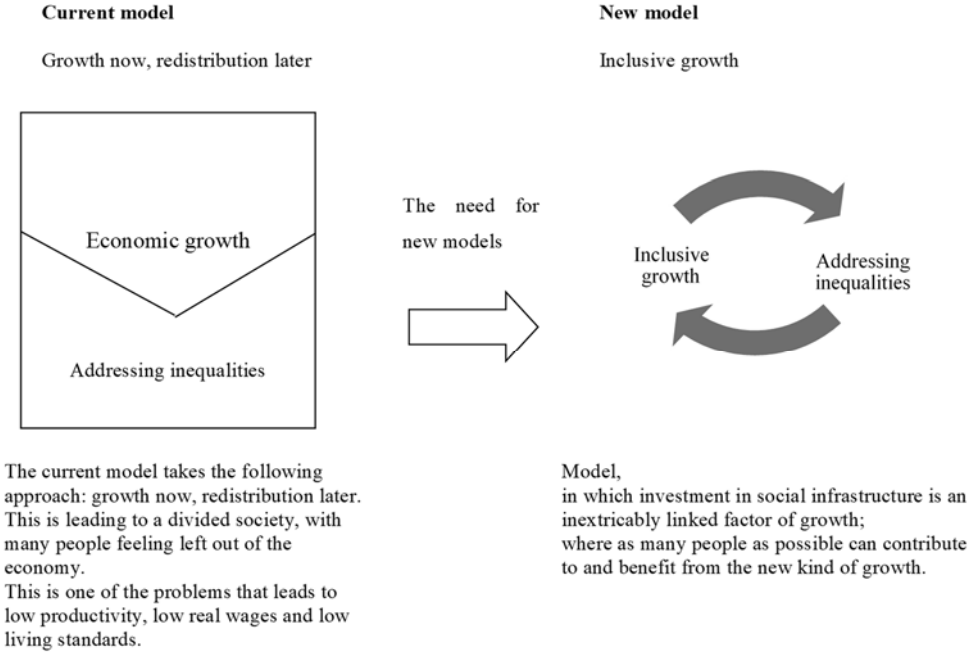
The results show that macroeconomic stability, human capital and structural change are the foundations for achieving inclusive growth. The role of globalisation can be positive, as according to the study cited, foreign direct investment and open trade promote inclusion, while increasing the supply of financial services and technological change have no visible effect.

The Royal Society of Arts (RSA) proposes a new model of growth (RSA, 2017). The authors accept the understanding that reducing inequality and deprivation can itself lead to growth. Investments in social infrastructure – including public health, youth support, employment services – must go hand in hand with investment in physical infrastructure and business development. According to them, this will have an impact on productivity and living standards. According to the RSA, the key change needed is a shift from an economic model

based on growth now and distribution later to one that sees growth and social reform as two sides of the same coin (Figure 1).

Figure 1

Current model and new growth model



Source: Based on RSA, Inclusive Growth Commission, 2017, p. 08.

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The special report by RSA is devoted to recommendations on how to put the principles of inclusive growth into practice in cities and regions. The authors focus mainly on:

- Creating a shared, binding mission – addressing the inclusive growth challenge requires a shared commitment to a common vision for change, how it can be achieved and the roles that business, civil society, central and local government can play in this process;
- To measure what is valuable and important and what we want to achieve based on delivering inclusive growth;

- To understand growth through the lens of social criteria, not just mechanistically – what matters, which problems are important to solve;
- Investment to ensure sufficient, strategic, integrated funding for social and physical infrastructure.

In Bulgaria, the topic of inclusive development is discussed mainly in the context of EU documents, World Bank documents, etc., from the perspective of normative economics. Often the publications present the EU policies only, the strategies adopted in Bulgaria, which repeat the European strategic documents, but there is no critical analysis of whether they are appropriate for the country. However, individual studies in Bulgaria examine selected indicators (Tsanov, 2020; Shopov, 2020; Beleva et al., 2009; Zhekova, 2014).

2. Measuring Inclusive Development

The concept of inclusive development encompasses different aspects and issues, as well as aims, pointed in achieving synergies in the implementation of different tasks. Therefore, it is not possible to measure progress with one or a few indicators, but rather with a set of them.

The problems associated with the choice of indicators have been discussed for a long time. These problems, highlighted by various authors, are largely identical to the ones related to the attempts to measure sustainable development. G. Mitchel (1996) stresses that measurement issues are similar to the ones that the organisations faced with the task of promoting sustainable development. For example, the compilation of multiple sets of indicators (indices), each of which includes a wide range of specific indicators. Existing sets of indicators are often not consistent and there is a danger that, without a clear method being applied, they may serve specific (ad hoc) research purposes. Such indicators may be ineffective in promoting sustainable development and hinder the process of sustainable development. At the same time, it should be noted that sustainability indices are designed primarily for use at the national level; they are not readily applicable at the local level and are not a good guide for decision-makers who wish to achieve inclusive growth at a local level.

G. Mitchell (1996) discusses the background of sustainable development indicators, including the problems with their compilation, and outlines basic steps to be followed to produce a list of appropriate indicators:

1. clearly defining the objectives for the use of particular indicators and specifying the user group to which they are targeted;
2. specifying what is meant by the concept to be measured (in this case sustainable development), the definitions to be taken into account, the sustainability principles to be applied;
3. identifying the issues that are important locally and globally.
4. indicators have different properties and they need to be selected to match the needs of the users of these indicators and the objectives of the study;

5. evaluating the indicators against the desired characteristics of the indicator and the objectives of the study.

The authors that are proposing all these indicators criticise the use of the GDP indicator as a sole indicator of societal progress. Individual international institutions are attempting to create tools to quantify inclusive development, prosperity and social equality. The existence of inequalities between countries and within countries is acknowledged.

Some of the indices are covering a range of indicators published recently include the following:

The aim of the Inclusive Development Index proposed by the World Economic Forum (World Economic Forum, 2018) is pointed to bridge the gap between desired and actual development outcomes and assess countries' ability to address inequality. The index covers 15 areas of key economic policies and the state of institutions that can contribute to both higher growth and broader social inclusion. The Inclusive Growth Index proposed by the Asian Development Bank covers 35 indicators from different areas – economic growth, employment, infrastructure, income inequality, gender inequality, opportunities (health, education, access to water and sanitation, etc.), Asian Development Bank (2014). The index has a system for weighting by individual indicators and aggregating them at the country level, published from 2011 to 2014, and surveys countries in the Asia and Pacific region.

Other indices emphasise certain complementary aspects of development alongside income. For example, the Legatum Prosperity Index (Legatum institute, 2019) attempts to capture not only a person's material wealth, but also the joy and satisfaction of everyday life and the prospects for a better life in the future. The index covers several main groups and subgroups – quality of the economy (macroeconomic indicators, openness of the economy, efficiency, etc.); business environment (environment for entrepreneurship, business infrastructure, barriers to innovation, flexible labour market); governance (effective governance, democracy, political participation, rule of law); education (access to education, quality of education, human capital); health (physical and mental health, health infrastructure, preventive care); safety and security (national and personal security).

The Social Progress Imperative Index (Social Progress Imperative, 2019) covers indicators in the following areas: basic human needs (food and basic health care, shelter, water and sanitation, personal security); well-being (access to basic knowledge, access to information and communication, health, environmental quality); opportunity (rights, personal freedom and choice, tolerance and inclusion, access to secondary and higher education). Like the other indices listed, this one is calculated at a national level. It covers 51 social and environmental indicators. According to the authors, an advantage of the index is that it does not deal with indicators such as happiness and life satisfaction, but focuses on specifically measurable indicators such as shelter and nutrition, making it a useful tool in policy formulation.

The Centre for Progressive Policy's (CPP) 2019 Inclusive Growth Index is the most popular and up-to-date survey on a national level. The index combines data on consumption, life expectancy, leisure, inequality and unemployment to produce an inclusive growth indicator for over 150 countries.

The authors of the index highlight that ensuring inclusive growth is one of the most urgent challenges facing economies across the world. They stress that using GDP alone as the main barometer of economic performance hinders an objective assessment of inclusive growth. The study finds that there are important differences between GDP per capita and the CPP index for inclusive growth. For example, Iceland and Luxembourg have similar scores for inclusive growth, although Luxembourg's GDP per capita is almost twice that of Iceland.

There are countries with varying inclusive growth to GDP ratios (from a very low 0.29 to as high as 1.51). Only 11% of countries (17 out of 155 countries) in 2017 had an inclusive growth to GDP per capita index ratio between 0.95 and 1.05 (Centre for Progressive Policy, 2019, p. 15). According to the authors, differences are observed because the inclusive growth index captures shared economic progress rather than total economic output. The richer a country, the less correlated GDP per capita and the inclusive growth index is.

The relationship between GDP and inclusive growth is stronger for countries with GDP per capita below 50% of the US GDP/capita level. For richer countries, GDP per capita increasing contributes less to inclusive growth. Measuring the index for this growth is closely related to other measures for well-being, but distinct from them more or less. There is a strong correlation between the UN Human Development Index (HDI) and the country-by-country index of inclusive growth, but there are important differences. For Central and Eastern European countries, there has been rapidly catching up of inclusive growth – the largest increase of the inclusive growth index is observed between 2000 and 2017. Five of the top six fastest-growing countries in terms of inclusive growth are those that joined the EU in 2004.

A review of the literature on topics such as inclusive growth, sustainable growth, etc., shows that cross-country comparisons dominate. So it can be summarised that the indices listed cover a variety of useful indicators in the context of inclusive development, but are only calculated at a country level. In order to conduct regional studies, the European Commission modified the Social Progress Index to use it in measuring the development of 272 European regions at the NUTS 2 level. Social progress is defined as the ability of society to meet the basic human needs of citizens, to provide the building blocks that enable citizens and communities to enhance and maintain their quality of life, and to create the conditions that enable individuals to reach their full potential. All this gives reason to assume that this index largely reflects the conditions determining inclusive growth.

Particularly impressive is the active research on inclusive growth at a local level in the UK. The UK's Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA) has committees on inclusive growth and on urban development. Research and pilot projects on inclusive development are underway in a number of UK cities and regions – London, Nottingham, Plymouth, Sheffield, etc. Interest in such research seems to have increased in relation to the expected difficult transition period after BREXIT. Particular attention is being paid to the development process, broad discussions are provided with a involvement of all stakeholders in measuring inclusive growth through indices and exploring the practical experiences of different metropolitan areas in achieving such growth and making appropriate policy recommendations accordingly.

In 2016, a Commission on Inclusive Growth was established at the Royal Society to explore how the UK can achieve more inclusive growth. The Commission includes economists from business, academia and social policy specialists. According to the Commission's stated intentions, it is addressing perhaps the UK's biggest social and economic policy challenge: how to make economic growth' work', to benefit everyone. The aim is to enable as many people as possible to participate in and benefit from growth, by seeking to redesign the growth model into one that benefits all. The referendum to leave the EU revealed not only a division in Britain's relationship with Europe, but also a widening gap between those for whom globalisation is beneficial and a large number of citizens for whom it is not. Of course, this is not just a British problem, as noted above, the OECD has also launched a campaign for inclusive growth. The Royal Society RSA does not propose a single index to measure inclusive growth, but focuses on the indicator of qualitative gross value added at the national and regional level, including at the city level. This indicator encompasses measurement in four main aspects, respectively addressing inequalities in these areas (RSA, 2017, p. 41):

- worker employment and skills, including education, vocational training, economic activity, mobility, etc.;
- living standards, including inequalities in income, wealth, health;
- enterprises, SMEs, business opportunities and entrepreneurship;
- capacity at a local level, including the capacity of local governments, NGOs (non-governmental organisations), etc.

RSA research is primarily focused on policy recommendations in delivering inclusive growth and specific pilot projects at the local level in the UK.

As a result of the review of literature on inclusive growth and its measurement, it can be concluded that the predominant publications are on a national level with a normative approach, i.e. they are related to proposing policies, strategies, measures. Publications on regions are less common, again with a normative approach predominating. Regional publications focus on what policies to implement locally. Measurements are mostly based on using indices. Some studies are commissioned and funded by local authorities and other organisations (such as in the UK, the RSA), which arguably puts researchers in a conflict of interest and raises the question of how independent and objective they are. The studies include measurement of various indicators and summary indices, but they are specific for the given region and are not applicable to Bulgaria.

3. Approach to Assessing Inclusive Regional Development in Bulgaria

When defining the economic development of a country or a group of countries, aggregate indicators are used, that does not sometimes allow us to take into account how this development affects different regions; in other words, whether development leads to a regional convergence or divergence. Therefore, there is a growing recognition of the need to study the relationship between economic growth and its impact on regional socio-economic and environmental disparities.

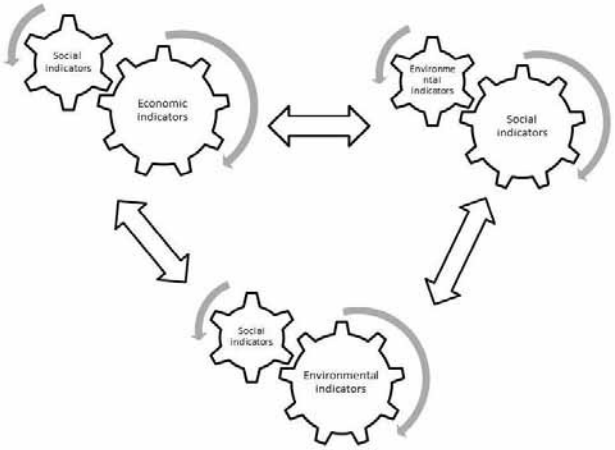
Growing spatial inequalities are characteristic for Bulgaria, this determines the relevance of the assessment and analysis of the impact of the processes determining regional disparities, as the processes of regional economic divergence in a sense can be considered inevitable at this stage of development. At the same time, it should be noted that inclusive regional growth does not preclude a development in which aggregate indicators of regional disparities increase, as long as this development does not lead to acute regional social problems.

Generally, the search for inclusive regional development in the case of Bulgaria, is not so much about striving to achieve specific high levels of economic development for the country, but primarily about ensuring that development does not lead to critical social, economic and environmental regional disparities. This overall development must also ensure a certain, "acceptable" rate of economic growth as a whole. In examining regional disparities, it is necessary to look for indicators that provide a measurable and objective assessment of the breach of certain criteria for acceptable limits of regional disparities.

Various indicators are used in the analysis of the relationship between the economic, social and environmental regional indicators as the aim is to see the links between them as shown in the following diagram.

Figure 2

Indicators for inclusive development



Source: Compiled by the authors of the study.

The methodology proposed by the authors for determining inclusive regional development, therefore, consists of the following: assessing the existence of critically high economic, social and environmental regional disparities, while the overall development is being achieved at an acceptable rate of economic growth. In this case, the methodology should define what critical regional disparities and acceptable economic growth are.

The methodology for assessing inclusive development is determined by defining the following requirements:

- A criterion for acceptable overall economic growth is one in which GDP per capita grows as a percentage, towards the EU average.
- Each region shows improvement in a number of socio-economic areas in recent years (assessed over a 5 or10 year period).
- Each region is developing in the same direction, which is determined by national trends (follows the direction of trends of key economic indicators at a national level).
- No region is in the best or worst position for all the selected indicators.
- For each region, there are areas (socio-economic indicators) where it is in a better position and those where it is in a worse position compared to other regions.

One of the tasks of applying the methodology is to rank these requirements in an approximate order corresponding to their immediate relevance to the main views of inclusive regional development, i.e. for each of these requirements to seek some estimate of the degree of relevance to the requirements. In general, it can be assumed that the order in which these requirements are presented corresponds to the degree of their importance in terms of achieving inclusive development.

The use of this inclusive development methodology for EU countries allows to argue that there is no country that goes beyond the set criteria – no country that has not met the requirements for inclusive economic development in the last 10-15 years (ERI Research Project, 2020).

The application of the inclusive development methodology for Bulgaria at the regional (district) level shows that it does not meet the requirement for such development in its economic and social aspects, while regional differences related to environmental indicators meet the criteria for inclusive regional development (ERI Research Project, 2020). The assessment of inclusive regional development identifies the future development of certain regions in Bulgaria as particularly problematic in the medium and long-run in terms of socio-economic criteria.

4. Conclusions

There is a general talk of the need for policy to achieve inclusive growth. However, any "new" economic policy faces the challenge of avoiding the pitfalls of current and previous clichés about what it should be, clichés that are more or less in the minds of politicians and, unfortunately, of a large part of economists. One such cliché circulated by the EU administration is the need for every country in the Union to link its development as much as possible to the so-called "knowledge-based economy" or to pursue a "knowledge-based economic policy".

These wishes are difficult to be realised because they are beyond the potential of the economies of most EU member states and remain virtually unrealisable. Nevertheless, they lie down (at least in intentions) in economic projects of the countries with weaker economies

in the EU. This leads to the publication of official economic policies that are not feasible, respectively, to the lack of incentives to conduct a truly effective economic development.

The approach regarding to inclusive growth is similar, there is talk of the need to achieve it, but it remains unclear how this will happen, how all these intentions will be combined and how to assess the presence or absence of inclusive development. The fact that there are different views on what should be understood by inclusive development determines the need to formulate a definition of inclusive regional development that is as simple as possible and thus easier to grasp. It is no coincidence that Duran (2015) jokingly notes, "when you ask five economists to define the concept (of inclusive growth), you are likely to get six answers".

In this respect, the main advantage of the presented methodology for evaluation when a development can be considered as an inclusive regional development is the clear criteria by which it can be assessed, as well as the fact that they are understandable, and easy to assess. So they can be correctly applied and at the same time give an unambiguous answer as to when inclusive regional development can be talked about. This is guaranteed also by the use of indicators measured and published by the National Statistical Institute and Eurostat – in other words, the application of the methodology is based entirely on harmonised information.

It should be noted that any regional policy can hardly be implemented in a way that fully meets these criteria for Bulgaria. For certain regions, achieving regional convergence, especially in terms of economic indicators, cannot be expected. This is why, there is a need to pursue a policy of so-called inclusive development in terms of social indicators – development that leads to an improvement in the distribution of welfare in its various dimensions, in this case – access to social benefits. Thus, in these cases, the regional strategy should aim at achieving the highest possible degree of convergence of the population's levels of access to basic services – health, transport, infrastructure, education, etc. Such a regional policy, if it cannot solve the economic problems of the lagging regions, will help to reduce disparities at least in terms of welfare benefits.

The regional policy should set achievable goals with a specific time horizon, including that of inclusive regional development. The current economic problems are such that major compromises on economic efficiency at the expense of achieving regional convergence, inclusive regional development are not realistic. This is not to say that there should not be a clear vision of what the direction of regional economic policy should be, and that opportunities should be sought for its implementation, even under the current economic conditions. Just as our country is confronted with the need to comply with environmental requirements, so it also has to comply with regional social requirements.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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NON-FINANCIAL INFORMATION DISCLOSURES BY BULGARIAN LISTED COMPANIES[2]

The study is dedicated to the disclosures in the non-financial statements (integrated reports) by the Bulgarian listed companies. It includes an analysis of the aims and the guidelines for the elaboration of non-financial reporting, the requirements for preparing, and the legal provisions. They suggest that the current European Union legislation and the Bulgarian laws are not sufficient for the presentation of appropriate non-financial information. In this regard, an empirical research into the quality of non-financial statements in Bulgaria is conducted. The summarised results could be used for improving the disclosures.
Keywords: non-financial information; integrated reports; Bulgarian listed companies
JEL: G18; M41; M48

Introduction

Effective as of January 1, 2017, in the European Union are requirements for the preparation of non-financial statements, also known as integrated reports. These statements should include disclosures for environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters. The presentation of such information is based on a new form of reporting that differs from financial reporting. Many studies have been performed on this topic in the last two decades and frameworks have been developed. This set the stage for the next step. Recently, there has been considerable interest in practical issues of non-financial and integrated reports from different countries. Scientists want to establish whether non-financial information is being effectively disclosed. The results are important for improving the frameworks and for their promotion by professional organisations in order to achieve sustainable development.

Of particular interest are the European practices, including the Bulgarian ones. There are specific mandatory requirements in the European Union, but without a defined framework.

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It is important to determine whether this approach allows the preparation of relevant and reliable non-financial statements.

The present paper **aims** to assess the quality of the non-financial statements of Bulgarian listed companies. To achieve that goal, the theoretical nature of non-financial reporting, the preparation of non-financial statements, the related legal provisions in Bulgaria, and the real-life practices have been studied. The **hypothesis** of the study is that under the current regulations, the Bulgarian listed companies do not use appropriate frameworks for non-financial reporting. It is subject to proof by an **empirical research**. Based on the analysis of the results, possibilities for improving the reporting may be identified.

The Necessity for and Recent Developments in Non-Financial Disclosures

The examination of the necessity for and recent developments in non-financial disclosures is fundamental for establishing their objectives and future directions. In addition, the descriptions allow to evaluate the appropriateness of frameworks and the practical problems.

The **conventional accounting reporting** is applicable in the preparation of financial statements that contain information about the financial position and financial performance of enterprises. They are useful for economic decision-making. However, the present times are characterised by many changes, which have a major impact on the competitiveness, growth, and survival of any enterprise. In modern conditions, financial indicators are not sufficient to analyse the overall condition of the enterprise, prospects, problems and possible solutions. Non-financial disclosures are increasingly considered the most critical reporting tool for presenting a company's dynamics. Many internal and external stakeholders are showing increasing interest in the environmental and social performance of organisations. Pressure from local communities, environmental activist groups and business partners (customers, investors and finance providers) leads to the emergence of new reporting systems for non-financial disclosures – environmental accounting, social accounting, corporate social reporting, sustainability accounting and integrated reporting.

Economic development and increased production capacities lead to pollution of the environment. They incur significant losses for society, as well as costs to restore and maintain the ecological balance. Accounting information is required for an organisation to effectively manage the environmental pressures, costs and benefits. Therefore, before the 1990s, **environmental accounting** was established. Its theoretical nature is related to externalities that are the subject matter of microeconomic theory. They are losses or gains from activities or transactions affecting a third party. Environmental accounting includes environmental management accounting and environmental financial accounting.

There is a considerable amount of literature on ***environmental management accounting***. However, the *International Federation of Accountants* conducted the first systematic study by a professional organisation in 2005 (Environmental Management Accounting, 2005). It presents financial and non-financial information related to environmental issues for management planning and control. Non-financial information includes quantitative data on the use and flows of energy, water and materials, including waste.

Environmental financial accounting is an accounting system for reporting internal environmental costs (those paid by enterprises), as well as assets and liabilities. It has not received considerable attention from professional accounting organisations. Requirements for recognitions are the likely reason. The elements of the financial statements are recorded based on the accounting standards. For example, according to *Commission Recommendation of May 30 2001, on the recognition, measurement, and disclosure of environmental issues in the annual accounts and annual reports of companies*, assets, liabilities and expenses are recorded when they meet the definitions and criteria for recognition. There are specific requirements to the disclosure of environmental issues only.

Following the emergence of environmental accounting, **Social Accounting** has become more noticeable (Dinev, 2011, p. 72). Many researchers, who explore it, give special attention to the publications of Rob Gray. He defines social accounting as follows: "…the preparation and publication of an account about an organisation's social, environmental, employee, community, customer and other stakeholder interactions and activities and, where, possible, the consequences of those interactions and activities. The social account may contain financial information but is more likely to be a combination of quantified non-financial information and descriptive, non-quantified information" (Gray, 2008).

Social and environmental issues are also addressed in "**Corporate social reporting**". It is a reporting of corporate social responsibility, including environmental and social issues. These matters are related to **Sustainability Accounting** or **Sustainability Reporting**, which are supported by various organisations and initiatives.

Sustainable development of the economy has three dimensions – economic viability, environmental responsibility and social responsibility (Sustainability Framework 2.0, p. 8). These indicators are defined as The Triple Bottom Line, which consists of three elements: profit, people, and the planet (Slaper, Hall, 2011).

All these reporting systems are essential for the development of non-financial disclosures. They brought benefits due to the expansion of the presented topics. However, the growing importance of environmental and social issues began to lead to the preparation of autonomous and independent non-financial statements. In this case, the crucial thing is the establishment of the *International Integrated Reporting Committee* in 2010, as a global coalition of regulators, investors, companies, standard setters, the accounting profession, academia and NGOs. This coalition promotes communication about value creation as the next step in the evolution of corporate reporting. The Board has a Steering Committee and a Working Group, which is co-chaired by the Chief Executive Officer of the International Federation of Accountants (A4S and GRI Announce Formation of the IIRC, 2010).

Following the establishment of this committee, the term "**integrated reporting**" is becoming more widespread around the world. This concept is increasingly being used for the complex presentation of financial and non-financial information for economic, environmental and social issues. Integrated reporting also includes the relevant theories and good practices that were used before its development, such as environmental, social, sustainable and other accounting.

Preparation of Non-Financial Statements

There are several standards for the preparation of non-financial statements, for example, standards of the *Global Accountability Initiative*, the *United Nations Global Compact*, ISO 26000 of the *International Organization for Standardization* and others (Peicheva, 2019, pp. 47-52). However, the *International Federation of Accountants*, as a professional organisation for all accountants in the world, supports the *International Integrated Reporting Framework* (The International Integrated Reporting Framework, 2013). It was released in 2013 following extensive consultation and testing by businesses and investors in all regions of the world, including the 140 businesses and investors from 26 countries that participated in the pilot program. This framework is accepted as most appropriate because of its characteristics, which deserve special attention.

According to the Framework **integrated reporting aims to**:

- improve the quality of information to enable a more efficient and productive allocation of capital;
- promote a more cohesive and efficient approach to corporate reporting that communicates the full range of factors that materially affect the ability of an organisation to create value over time;
- enhance accountability and stewardship for the broad base of capitals and promote understanding of their interdependencies;
- support integrated thinking, decision-making and actions that focus on the creation of value over the short, medium and long term.

To achieve these objectives, enterprises should prepare **integrated reports**, which include concise communication (financial and non-financial information) on how the organisation's strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value. They differ from the financial statements, which are based mainly on financial information about the company's past in a short-term focus. In addition, unlike the financial statements, the integrated reports include externalities, similar to environmental and social accounting. This information is needed because externalities may be critical to increasing or decreasing the value of the organisation.

Organisations create value for both financial capital providers and other stakeholders. Therefore, the integrated reports are intended for all those who are interested in the company's ability to create value over time, including employees, customers, suppliers, business partners, local communities, legislators, regulators and policy-makers. With regard to this, it differs from the financial statements, which according to the *Conceptual Framework for Financial Reporting,* are intended for potential investors, lenders and other creditors, in making decisions to provide resources to the company, although management, regulatory authorities and citizens can also use it.

The *International Integrated Reporting Framework* is based on principles. It has fewer rules than the *International Financial Reporting Standards*. The aim of this approach is to achieve a balance between flexibility and rules, without specific key indicators, methods for

measuring or individual disclosures. The persons responsible for preparing and presenting the integrated report should assess relevant matters and determine how they should be disclosed.

However, key indicators can be used through a combination of quantitative and qualitative information. But the purpose of the integrated reports is not monetising the value of the enterprise at a particular time (such as the statement of financial position) or the created value for a period (such as the statement of profit or loss and other comprehensive income). They aim to present how the entire capital is being used.

It is important to understand that the integrated report is not an alternative to the financial statements. This is clear from the following provisions of the framework:

- an integrated report is intended to be more than a summary of information in other communications (e.g. financial statements, a sustainability report, analyst calls, or on a website); rather, it makes explicit the connectivity of information to communicate how value is created over time;
- an integrated report may be either a standalone report or be included as a distinguishable, prominent and accessible part of another report or communication. For example, it may be included at the front of a report that also includes the organisation's financial statements.

According to the Framework, organisations create value through the use of the following **capitals** – financial, manufactured, intellectual, human, social and relationship, and natural. These capitals correspond to the factors of production in the microeconomic theory, which are defined as the resources for the creation of goods for people.

In *The Wealth of Nations (1776),* Adam Smith notes that in any society, the price of goods includes labour, capital, and land. Labour represents human capital in the framework, capital – financial capital, land – natural capital. These are the resources in the classical economic theory. The factors of production in the modern world are the capitals in the framework.

These capitals are recorded in the financial reporting (based on the *International Financial Reporting Standards*) and presented in the financial statements, as assets, liabilities and equity, only when they meet the criteria for recognition under the *Conceptual Framework for Financial Reporting*. However, all capitals are important for the integrated reports, regardless of whether it is presented in the financial statement.

For the integrated reporting are important also the **principles**, which are the following (The International Integrated Reporting Framework, 2013, par. 3.1-3.57): strategic focus and future orientation, connectivity of information, stakeholder relationships, materiality, conciseness, reliability and completeness, and consistency and comparability.

Some of the principles are represented characteristics also of financial reporting. The financial statements should have connectivity of information, conciseness, reliability (reliable presentation) and completeness, as well as consistency and comparability. The integrated reporting differs from financial reporting in the principle of "strategic focus and future orientation". The financial statements include historical financial information. In addition, they do not provide information on understanding, reporting on and meeting the

legitimate needs and interests of all key stakeholders. The materiality concept is also applied in the preparation of the financial statements – companies must present each significant group of similar items separately. However, information that is material to the financial statements may not be material to the integrated report.

The integrated reports have 8 **elements** (The International Integrated Reporting Framework, 2013, par. 4.1-4.40): organisational overview and external environment, governance, business model, risks and opportunities, strategy and resource allocation, performance, outlook, basis of preparation and presentation. They differ from the components of the financial statements, because the purpose of integrated reporting is to present the use of all capitals, not just those that can be measured reliably from accounting.

The best practice to prepare non-financial statements (integrated reports) is based on the *International Integrated Reporting Framework*. Therefore, in 2015 the **International Federation of Accountants** published a document for assurance of reports prepared under this framework – *Exploring Assurance on Integrated Reporting and Other Emerging Developments in External Reporting*. Based on the research conducted in 2016, discussion papers were published, but their names were different (Discussion Paper, Supporting Credibility and Trust in Emerging Forms of External Reporting, 2016):

- *Supporting Credibility and Trust in Emerging Forms of Reporting. An overview of the International Auditing and Assurance Standards Board's Discussion Paper: Supporting Credibility and Trust in Emerging Forms of External Reporting – Ten Key Challenges for Assurance Engagements;*
- *Supplemental Information to the Discussion Paper, Supporting Credibility and Trust in Emerging Forms of External Reporting: Ten Key Challenges for Assurance Engagements*.

In 2017, after analysing stakeholder views, it was decided to develop a guide for implementation of the standards. *Consultation Paper, Extended External Reporting Assurance* was published in 2019. This document explains that the expanded external reporting includes integrated reporting, reporting on sustainability, reporting on environmental, social, management and other issues.

The titles and analysis of papers show that the term "integrated report" has been replaced by the terms "emerging forms of external reporting" and "extended external reporting" after 2016. According to the *International Federation of Accountants* it`s not important whether the *International Integrated Accounting Framework* or another non-financial reporting approach is applied for presenting environmental, social and other issues. Auditor`s standards are applicable for all assurance engagements. As a result, in Europe, incl. in Bulgaria, some guidelines for non-financial reporting are used, without emphasising the framework for integrated reporting.

Legal Provisions for Non-Financial Statements

The Bulgarian Accounting Act requires the preparation of non-financial statements, which contain financial and non-financial information on environmental, social and other significant issues (Zakon za schetovodstvoto, 2015, DV. No. 95, last modified: 2020). They have been introduced into the national accounting legislation with the transposition of Directive 2013/34/EU and Directive 2014/95/EU. The provisions are **obligatory** for large enterprises, which are enterprises of public interest and which, on December 31 of the reporting period, exceed the criterion for the average headcount of 500 during the financial year.

According to the Accounting Act, large enterprises are enterprises, which at December 31 of the current reporting period exceed at least two of the following criteria:

1. carrying amount of the assets – BGN 38,000,000;

2. net sales revenue – BGN 76,000,000;

3. an average number of employees for the reporting period – 250.

The enterprises of public interest are the following:

- enterprises whose transferable securities are admitted to trading on a regulated market (listed companies) in the European Union;
- credit institutions;
- insurers and reinsurers;
- pension insurance companies and funds managed by them;
- investment firms, which are large enterprises under this Act;
- collective investment schemes and management companies within the meaning of the Collective Investment Schemes and Other Collective Investment Undertakings Act, which are large enterprises;
- financial institutions within the meaning of the Credit Institutions Act, which are large enterprises;
- Holding Bulgarian State Railways EAD and its subsidiaries; the National Railway Infrastructure Company;
- companies whose primary business is to produce and/or to transfer, and/or to sell electricity and/or heat and which are large enterprises;
- companies whose primary business is to import and/or to transfer, and/or to distribute or transit natural gas and which are large enterprises;
- water supply and sewerage operators, which are medium or large enterprises.

Non-financial statements should contain information on:

1. brief description of the business model of the enterprise – goal, strategy, organisational structure, infrastructure, products, and policies;
2. description of the policies adopted and followed by the enterprise in respect of environmental and social issues, including the activities performed during the reporting period and the results;
3. objectives, risks and tasks that lie ahead in terms of environmental and social policies, including a description of activities that would have an adverse impact on ecology, employees or other social issues;
4. description of the key indicators of the results of the activities related to environmental and social issues.

According to the law, non-financial statements can be presented in two ways:

- in a report on operations (annual report), which contains non-financial information;
- as a separate report, which is published together with the report on operations or is publicly available on the website of the enterprise, which fact shall be disclosed in the report on operations.

No other requirements for the preparation of non-financial statements are identified in the law. Guidance can be found in Directive 2014/95/EU. It sets the frameworks that can be used – undertakings may rely on national frameworks, Union-based frameworks such as the Eco-Management and Audit Scheme, or international frameworks such as the United Nations (UN) Global Compact, the Guiding Principles on Business and Human Rights implementing the UN 'Protect, Respect and Remedy' Framework, the Organization for Economic Co-operation and Development Guidelines for Multinational Enterprises, the International Organization for Standardization's ISO 26000, the International Labor Organization's Tripartite Declaration of principles concerning multinational enterprises and social policy, the Global Reporting Initiative, or other recognised international frameworks (Directive 2014/95/EU, par. 9).

Interestingly, the Directive does not refer to the *International Framework for Integrated Reporting*. However, it is included (among other frameworks) in the *communication from the Commission – Guidelines on non-financial reporting (methodology for reporting non-financial information) from 26.06.2017*. The Guidelines present the basic principles and content that could be included in the non-financial statement.

The **principles** are, as follows:

- disclose material information;
- fair, balanced and understandable;
- comprehensive but concise;
- strategic and forward-looking;
- stakeholder orientated;

- consistent and coherent.

They are almost identical to the principles of integrated reporting and can be seen in Table 1.

Table 1

Principles of integrated reporting and basic principles of non-financial statements according to the Guidelines

Principles of integrated reporting	Corresponding basic principles of the non-financial statement according to the Guidelines
Strategic focus and future orientation	Strategic and forward-looking
Connectivity of information	Consistent and coherent
Consistency and comparability	
Stakeholder relationships	Stakeholder orientated
Materiality	Disclose material information
Conciseness	Comprehensive but concise
Reliability and completeness	Fair, balanced and understandable

Source: Author`s point of view.

The table shows that "Strategic focus and future orientation" is a principle of integrated reporting. A similar principle is set out in the Guidelines on the disclosures of non-financial statements – "Strategic and forward-looking". The principle "Consistent and coherent" in the Guidelines includes the principles "Connectivity of information" and "Consistency and comparability" in integrated reporting. Coherence means connectivity and consistency, and comparability is achieved through consistency. Stakeholder relationships, materiality and conciseness, are also characteristic of both models. Different terms are used for "Reliability and completeness" in integrated reporting and "Fair, balanced and understandable" in the Guidelines. In integrated reporting, "Reliability and completeness" means presenting all significant issues, positive and negative, in a balanced way without significant errors. According to the Guidelines, "Fair, balanced and understandable" means that the favourable and unfavourable aspects are objectively considered and that the information is assessed and presented impartially. As can be seen, they are also similar.

The **elements** of the non-financial statement, which are specified in the Guidelines, are:

- business model;
- policies and due diligence;
- outcome;
- principal risks and their management;
- key performance indicators;
- thematic aspects.

They are similar to those specified in the Accounting Act, although they are presented with names that are not completely identical.

The sample disclosures on the elements of the non-financial presented in the Guidelines show that they are analogous to the disclosures on the elements of the integrated report, according

to the *International Framework for Integrated Reporting* (Veysel, 2018). The corresponding elements of the non-financial statements of the elements of the integrated reports are presented in Table 2.

Table 2

Elements of the integrated report and elements of the non-financial statement according to the Guidelines

Elements of the integrated report	Relevant elements of the non-financial statement according to the Guidelines
Organisational overview and external environment	Business model
Business model	
Strategy and resource allocation	
Outlook	
Governance	Policies and due diligence
Risks and opportunities	Principal risks and their management
Performance	Outcome
	Key performance indicators
Basis of preparation and presentation	-
-	Thematic aspects

Source: Author`s point of view.

It is clear from the table that some elements of the non-financial statement are identical to some elements of the integrated report. For example, the disclosures in the "Organisational overview and external environment", "Business Model", "Strategy and resource allocation" and "Outlook" elements of the integrated report are specified in the "Business Model" element of the non-financial report. The opposite is also observed – two elements of the non-financial statement – "Outcome" and "Key performance indicators" – are matched by one element of the integrated report – "Performance". There is no comparable element in the integrated report to "Thematic aspects" of the non-financial statement. However, these issues are also addressed. For example, human rights, gender diversity and equal treatment in "Thematic Aspects" are disclosed in the "Organisational overview and external environment" and in the "Governance" of the integrated report.

The comparative analyses show that in terms of principles and structure, the integrated reports and the non-financial statements are similar. However, there are some material differences. In this regard, it should be noted that the non-financial statement does not pay significant attention to the types of capital. The terms natural capital and human capital are used but are not presented as fundamental concepts. It is not clear if their connections create value. This approach also applies to all other elements. The integrated report is compiled based on a framework and all elements are presented as part of a reporting system. A non-financial statement only includes certain disclosures. The connection between them is not clear despite the principle of coherence. That is why it may be summarised that the non-financial statement is most effective when prepared as an integrated report under the *International Integrated Reporting Framework*.

The European regulations do not require explicit compliance with this framework. Even the *International Federation of Accountants* assumes that other requirements may be applied.

This approach is not appropriate and cannot lead to the compilation of high-quality non-financial statements.

There are many empirical researches into the omissions in the preparation of non-financial statements based on European regulations (Pelikanova, 2019; Borodin, 2019; Muserra, 2020; Krasodomska, 2020). The European Commission has published a study as well (Study on the Non-Financial Reporting Directive, 2020). It proves that more freedom in the reporting limits comparability across companies. The study also identifies that the lack of precision in the current requirements and a large number of standards and frameworks make it difficult for companies to know exactly what information they should report. In this regard, a new Directive is proposed (Proposal for a Directive of the European Parliament and of the Council, 2021). It envisages the adoption of delegated acts by October 31, 2023, at the latest to provide for sustainability reporting standards. Those standards shall specify the information that undertakings are to report. They should take account of internationally recognised principles and frameworks on responsible business conduct, corporate social responsibility, and sustainable development, including the *International Integrated Reporting Framework*.

The proposals aim for more comparability and increased disclosures. They will lead to an improved reporting process. The statements will be more similar to the integrated reports. For example, the Proposal for a Directive (Proposal for a Directive of the European Parliament and of The Council, 2021, (39), p. 43) requires undertakings to disclose information on intellectual, human, and social and relationship capital, similarly to the integrated reporting framework, but they cannot help to solve some problems. An empirical research can prove that.

An Empirical Research into the Presentation of Non-Financial Statements

As mentioned above, according to the Bulgarian Accounting Act, large enterprises, which are enterprises of public interest and which, at December 31 of the reporting period, exceed the criterion for the average headcount of 500 during the financial year, have an obligation to disclose non-financial information – as a standalone report or by including such information in the report on operations.

There is no list of Bulgarian companies that have an obligation to compile non-financial statements. The most recent list of enterprises of public interest is from 01.11.2016. They number 569 (List of Enterprises of Public Interest, 2016). However, not every company has an obligation to disclose non-financial information. In this case of interest are the listed companies, which are widely considered the most important enterprises for accounting purposes. They are subject to the highest number of legal requirements for their accounting and auditing. Their list, as of April 05 2021, is published on the website of the Bulgarian Stock Exchange. Some of them are also not obliged to disclose non-financial information. However, for the purposes of the research, the financial statements of all these companies were examined. They are indicative of the quality of non-financial statements in Bulgaria.

- *Methodology and limitations of the research*

The population of the survey includes all listed companies in Bulgaria – 310 entities as of April 05 2021, according to the published list on the Bulgarian Stock Exchange's website. They are required to publish their reports within 90 days of the end of the financial year – until March 31, 2021, for 2020.

The disclosures of all listed companies on the website of the Bulgarian Stock Exchange were carefully checked for non-financial information. The research can be divided into the following stages:

1. Identification of the companies that have disclosed non-financial information, as separate non-financial statement or in the activity reports. For this purpose, all published documents of the companies are reviewed.
2. Establishing the applied criteria (framework or guidelines) for non-financial information.
3. Analysing the volume and content of non-financial information. The aim is to find out whether Bulgarian companies present only non-financial information required by law or provide these data in detail.
4. Analysing significant uncorrected misstatements in the non-financial statement according to the auditor`s reports.

Not all companies prepare consolidated financial statements. Therefore, only the individual financial statements have been examined. The compliance of the reports with the laws has not been analysed. This is because gaps are identified in the auditor`s reports.

- *Research results*

The detailed reviews of all published documents for 2020 by all listed 310 companies shows that 17 prepare non-financial statements. Table 3 includes systematic information about them, including their economic area, revenues, and assets.

Table 3

Details for all listed Bulgarian companies, which disclose non-financial information

Approach to the disclosure of non-financial information	Criteria applied to the disclosure of non-financial information	Volume of non-financial information (pages)	Misstatements in the non-financial information	Economic Area	Revenues (million EUR)	Assets (million EUR)
Separate non-financial statement	Only legal requirements	13	No misstatements	Wholesale and Retail Trade	455	247
Separate non-financial statement	Only legal requirements	14	No misstatements	Manufacturing	347	41
Non-financial disclosures in the activity report	Only legal requirements	8	No misstatements	Wholesale and Retail Trade	197	70
Non-financial disclosures in	Only legal requirements	11	No misstatements	Manufacturing	190	481

Approach to the disclosure of non-financial information	Criteria applied to the disclosure of non-financial information	Volume of non-financial information (pages)	Misstatements in the non-financial information	Economic Area	Revenues (million EUR)	Assets (million EUR)
the activity report						
Non-financial disclosures in the activity report	Only legal requirements	2	No misstatements	Financial and Insurance Activities	179	5539
Separate non-financial statement	Only legal requirements	3	No misstatements	Wholesale and Retail Trade	176	197
Separate non-financial statement	Other frameworks (the United Nations Global Compact)	30	No misstatements	Manufacturing	110	332
Non-financial disclosures in the activity report	Only legal requirements	10	No misstatements	Financial and Insurance Activities	95	20
Separate non-financial statement	Only legal requirements	5	No misstatements	Financial and Insurance Activities	93	3395
Separate non-financial statement	Commission Guidelines on non-financial reporting	24	No misstatements	Transportation and Storage	92	87
Separate non-financial statement	Only legal requirements	5	No misstatements	Financial and Insurance Activities	69	3121
Separate non-financial statement	Only legal requirements	13	No misstatements	Manufacturing	61	72
Non-financial disclosures in the activity report	Only legal requirements	4	No misstatements	Manufacturing	56	51
Separate non-financial statement	Only legal requirements	7	No misstatements	Wholesale and Retail Trade	26	40
Non-financial disclosures in the activity report	Only legal requirements	3	No misstatements	Accommodation and Food Service Activities	15	297
Non-financial disclosures in the activity report	Only legal requirements	1	No misstatements	Financial and Insurance Activities	12	55
Non-financial disclosures in the activity report	Only legal requirements	1	No misstatements	Financial and Insurance Activities	8	56

Source: Author`s research.

The economic areas, revenues and assets are presented to obtain an understanding of the entities. Of major interest for the study are the other features – approach to the disclosure, applied criteria, volume, and misstatements.

The classification of the companies according to the approach to the disclosure of non-financial information is given in Table 4.

Table 4

Bulgarian listed companies according to the disclosure of non-financial information

Bulgarian listed companies	Number of companies	%
Companies that prepare non-financial statements	9	3
Companies that disclose non-financial information in the report on operations (annual report)	8	3
Companies that do not disclose non-financial information	293	94
Total	310	100

Source: Author`s research.[3]

The table shows that 94% of the Bulgarian listed companies do not disclose non-financial information. Their auditor`s reports are not qualified in opinion due to the lack of non-financial information required by law. This means that they have no obligation to disclose such information in accordance with the above requirements.

Only 6% of listed companies have published non-financial information, half of them – as a separate non-financial statement, and the other half – in the report on operations. The analysis of the documents shows that all companies publish this information due to legal obligations. There is no listed company that voluntarily discloses. This means that Bulgarian companies do not use these provisions for competitive advantage. They probably do not consider that this information is important for their sustainable development.

It is interesting to see whether Bulgarian companies apply the best non-financial reporting framework – the *International Integrated Reporting Framework*, which the *International Federation of Accountants supports,* or other frameworks and guidelines. The results are summarised in Table 5.

Table 5

Applied criteria to the disclosure of non-financial information

Applied criteria	Number of companies	%
The International Integrated Reporting Framework	0	0
Other frameworks	1	6
Commission Guidelines on non-financial reporting	1	6
Legal requirements only	15	88
Total	17	100

Source: Author`s research.

It can be seen from the table that there no company listed on the *Bulgarian Stock Exchange* applies the *International Integrated Reporting Framework*. This is despite the fact that there are many scientific publications, including in the journal of the *Institute of Certified Public*

[3] Published financial statements on the website of the Bulgarian Stock Exchange, https://www.bse-sofia.bg/bg/disclosure-by-issuers [Accessed April 18, 2021].

Accountants in Bulgaria, as a member of the *International Federation of Accountants* (Peicheva, 2017; Veysel, 2018; Dineva 2019).

Of all the companies, only one applies an international framework – the *United Nations Global Compact*. There is also only one company that applies the guidelines of the European Commission – *Communication from the Commission – Guidelines on non-financial reporting (methodology for reporting non-financial information) from 26.06.2017*.

All other companies apply only the legal provisions specified in the Bulgarian Accounting Act. However, they are limited and not sufficient to prepare high-quality non-financial statements. The volume of non-financial information also establishes this, which is, as shown on Table 6.

Table 6

Volume of disclosed non-financial information

Volume of non-financial information	Number of companies	%
Up to 3 pages	5	29
Over 3 to 6 pages	3	18
Over 6 to 12 pages	4	24
Over 12 pages	5	29
Total	17	100

Source: Author`s research.

It can be seen that 29% of published non-financial statements are up to 3 pages in volume. This is too limited for the proper presentation of non-financial information, which is important for corporate social responsibility and sustainable development.

The analysis of the content of these reports, as well as the reports, 3 to 6 pages in volume (a total of 47% of all reports), shows that these companies list certain information required by the Bulgarian Accounting Act. They do not follow the above-mentioned principles of integrated reporting, which are similar to the principles of the Guidelines of the European Commission. These gaps are present in both the separate non-financial statements and the non-financial information in the report on operations. Despite these omissions, all companies comply with the legal requirements, according to the auditors' reports. The results are presented in Table 7.

Table 7

Misstatements in non-financial information

Misstatements	Number of companies	%
No misstatements	17	100
Existence of misstatements	0	0
Total	17	100

Source: Author`s research.

According to the auditor`s reports, there are no significant uncorrected misstatements in the non-financial information published by Bulgarian companies. However, compliance with the legal requirements does not mean that the information is useful. In this case, there are gaps in the legal provisions. The presented information, without the basic principles, the specific elements, type of capital through which value is created, is not completely useful.

Conclusion

The results of this study prove that the Bulgarian listed companies disclose non-financial (integrated) information only in case of legal obligation. Of all 310 companies, listed on the Bulgarian Stock Exchange as of April 05 2021, only 17 have published such information for 2020 – as separate statements or in the activity reports. Non-financial information is not disclosed voluntarily to increase competitive advantage or for purposes of sustainable development.

Bulgarian listed companies do not apply *the International Integrated Reporting Framework*, although it`s supported by professional accounting organisations, incl. the *International Federation of Accountants*. The many publications of both accounting organisations and researchers are not enough to convince managers that this framework should be applied. Of all Bulgarian companies that have disclosed non-financial information for 2020, only 2 have a reference to a framework or to guidelines. All others comply with the legal requirements only, which are limited and incomplete.

The analysis of the published non-financial information shows that its quality is extremely low. Many companies do not follow the principles of integrated reporting.

These results are attributable to the current provisions in the European Union, which are not sufficient for the preparation of useful non-financial statements. Specific requirements for their compilation must be introduced. It is suitable to adopt the *International Integrated Reporting Framework* as a mandatory standard. In this respect, the role of the *International Federation of Accountants*, through its members in all European countries, is also important. The professional organisations need to work to prove the usefulness of the framework.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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Maria Markova[1]

THE COMPANY DIGITAL COMPETITIVENESS FOCUSED ON INTELLECTUAL PROPERTY RIGHTS – CONCEPT, ASSESSMENT AND STRATEGY[2]

The method of analysis of the current status of of the IP portfolio of a company and the IP portfolio as a factor for obtaining and sustaining the company competitiveness. The aim is to present the main points of the scientific thesis of the company digital competitiveness focused on intellectual property rights (IPR).

This article presents definitions, content and its general management aspects for the following terms:

1. *a concept for 'company digital competitiveness';*
2. *the place and the importance of intellectual property rights for the company's digital competitiveness;*
3. *a model for assessment of the company's digital competitiveness focused on intellectual property rights as apart from a strategy to achieve digital competitiveness of the company;*
4. *a method for the formation of the company's digital competitiveness strategy, focused on intellectual property rights.*

The paper presents the point of view for the main term 'digital competitiveness' as general and focuses on IP rights as an IP portfolio of the company, including the company's competitiveness terms and economic indicators for it.

Special attention is paid to IP rights as a factor for the company's digital competitiveness and IP portfolio of a company as a content and as a structure and the methods of assessment of the company's current status and planned future value.

The final part presents examples for IP rights owned by successful companies known well all over the world as the practical issue of the thesis.

Keywords: IP rights; IP portfolio; company digital competitiveness
JEL: K49

I. Introduction

The digital world of business is already a fact – the use of networks, smartphones, tablets, ICT-based communication tools is a convenience and a necessity that brings benefits,

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contacts and profit for the company. ICT-based innovations optimize business processes, increase efficiency and improve business decision-making. ICT-based innovation is a necessity in the present and a good investment in the future for the business and the environment, for consumers and for society as a whole. Nowadays, the business discusses and plans its digital competitiveness as an actual business tool.

For the purposes of digital competitiveness, the European economy displays the DESI – Digital index. Economy and Society index whose goal is to rank the member countries in their "digital presentation" by measurable indicators: connectivity as infrastructure and quality, human capital as skills needed for digital connectivity, use of internet services provided to the public, implementation of digital technologies for business purposes and public digital public services. According to this index, Bulgaria ranks last in 27-EU countries.

Bulgaria has a national program "Digital Bulgaria 2025", linked to the programming of EU structural funds, which outlines some measures to improve connectivity, public services and the introduction of digital technologies by the private sector. However, this is not a comprehensive strategy to support the digital transformation in Bulgaria. In 2017 a concept for the digital transformation of the Bulgarian industry was developed in Industry 4.0 strategy, but it is still at the project stage. Moreover, these program documents do not deal with IP in the products and technologies of the digital transformation of the economy.[3] The question of how to cope, how to deal and how to achieve a better word place in the digital competitiveness has been answered given below.

A key role for the company's digital competitiveness is played by the company's IP portfolio, which contained innovations for products and technologies, based on ICT and digital business identifiers (BI) protected through IPR. Thanks to the protection of innovations through intellectual property, the company receives the exclusive right to use them in its business, which leads to competitive advantages in terms of economic indicators such as lower cost, higher productivity, better profit values, profitability and overall competitiveness. Registered business identifiers as objects of the intellectual property give the owner their exclusive right over them using these business identifiers and to create the link "company – business identifiers – consumer demand" and to prohibit unfair use by third parties without his consent (Markova, 2018b, pp. 35-55). The significance of the problem lies both in response to the digital business environment and in the need for the acting business to know and to use in its activities the objects of intellectual property for the purposes of achieving and maintaining competitiveness as an economic interest and maintaining stability through the protection of its innovations and business identifiers as intellectual property rights.

II. Research Methodology

The scientific paradigm (approach, model for assessment and for formation of a business strategy) for identifying the company digital competitiveness and the place of intellectual property in it is based on the proven in science and business the world-known M. Porter approach for international, national and company competitiveness and the author's

[3] www.eurostat.eu; www.europa.eu; www.techtrends.bg.

methodological framework, including a system and indicators for assessment of the digital competitiveness of the company focused on company's IPR. The main goal of the paradigm is to study and prove the importance of intellectual property in achieving and maintaining the digital competitiveness of the company. The targeted framework is structured as follows:

1. To define and clarify in content a structured concept of "digital competitiveness".
2. To identify the intellectual property portfolio used for protection of innovations based on ICT and for protection of business identifiers (BI) of the company as a focus of the company's digital competitiveness

1. Main General Terms Relevant To a Digital Competitiveness

The main points in the scientific paradigm for the digital competitiveness of the company contain basic concepts and working definitions, author's understandings for the competitiveness of the company and related concepts, author's statement on "digital competitiveness" – common/national and as a company level.

1. "Competitive advantage" is accepted as specific characteristics or properties possessed by the products offered by the company, which gives them a certain advantage over the immediate (closest) competitors.
2. "Product competitiveness" is accepted as a complex economic indicator representing the ability of a product to be distinguished, based on real or imagined competitive advantage, among other products on the market and on this basis, it is preferred by consumers.
3. "Company competitiveness strategy', distinguished by prof. M. Porter into two main types of competitive advantage:
    - marketing competitive advantage, when it is based on the distinctive qualities of the product, which constitute value for the buyer either by reducing its costs in its use, or by increasing the results of use.
    - cost-competitive advantage when based on the company's superiority in the level of production and marketing costs of the product.
4. The author's point of view is based on the position that the basis of both types of competitive advantage is intellectual property and it is presented as the following terms:
    - 4.1. Company competitiveness – the actual and potential ability of the company as management and implementation to research, design, construct, produce and offer goods whose price and "non-price" characteristics more effectively meet the needs of consumers compared to the same or similar competitors' goods". The focus is on the competitiveness of the product, following the maxim "the offered by the company products is the real core of the company".
    - 4.2. The assessment of the company competitiveness is made on the basis of the research of the needs of the consumers and the requirements of the market and respectively of the degree of conformity/response of the products offered by the company to the

derived needs of the consumers and market requirements. The goal of the consumer is to achieve an optimal ratio between the consumer properties of the products he buys and the costs of acquisition and use, to achieve the maximum consumer effect to unit costs.

4.3. The basis for achieving this goal is the unity of abstract and concrete features of the product. The specific features of the product are manifested in the process of consumption in certain specific conditions and in the presence of certain specific parameters of the product. Abstract features are a necessary element of the process of satisfying a certain need and as an abstract essence, the product also has a certain usefulness. The combination of the abstract and the concrete essence of the product leads to a complex utility effect, which results from the possession and consumption of the product, associated with the satisfaction of different levels of needs in the expanded Maslow pyramid.

4.4. The goal of the company management is not to continuously increase competitiveness. The real objective is to maintain it at an optimal level and its management. Here, the focus is on the company's intellectual property in both groups – innovations (product and technology) and business identifiers. This gives the company competitive advantages in terms of recognition and a positive image. Management of the company's competitiveness is dynamic and optimal decision-making on two main indicators – "competitive situation" and "competitive advantages of the company".

2. Main Structured Terms in „Company Digital Competitiveness"

1. Main points and definitions in the term 'company digital competitiveness'[4]:

- a narrow sense – a complex indicator of the company's competitiveness in a digital business environment;
- a broad sense – complex economic indicator for the results of the company's activity (goods, services, good name), its competitive position and competitive advantages in a comparative analysis with the closest competitors in the business segment, taking into account the conditions and parameters of the digital business environment.

Digital competitiveness is the company's ability to create and offer competitive products (goods and services) in a digital market environment.

The substantive structuring of the concept of "digital competitiveness of the company" refers to the competitiveness of the company in a digital business environment and the concept of "intellectual property in the digital competitiveness of the company" covers the following aspects:

[4] The term "digital competitiveness of the company" is used as equal as the term "company digital competitiveness".

- innovations of the company based on digital technologies (ICT);
- digital business identifiers of the company;
- organizational and technological infrastructure of the company based on digital technologies (ICT);
- organizational and technological infrastructure of the business environment based on digital technologies (ICT), in which the company operates.

3. Main Aspects Regarding the IP Rights in the Company Digital Competitiveness

3.1. IPR as a focus of the company's digital competitiveness

A key role for a company's digital competitiveness is played by the possessed by the company IP portfolio of innovations for products and technologies, based on ICT and of digital business identifiers /BI/ protected both through objects of intellectual property. Thanks to the protection of innovations through intellectual property, the company receives the exclusive right to use them in its business, which leads to competitive advantages in terms of economic indicators such as: lower cost, higher productivity, better profit values, profitability and overall competitiveness. Registered business identifiers as objects of the intellectual property give the owner their exclusive right over them, using these business identifiers and to create the link "company – BI – consumer demand" and to prohibit unfair use by third parties without his consent.

Due to the obtained IP rights (IPR) in innovations and in BI the company may obtain, optimize and sustain 'company competitiveness' into two main types of competitive advantages 'marketing competitive advantage' and 'cost-competitive advantage'. The company may possess and sustain a good place in digital competitive market and in a digital competitive environment.

3.2. Approach to achieve a company's digital competitiveness

The approach is interdisciplinary and represents as a complex of knowledge and skills, accumulated research and consulting experience of the author in economics and law following the line "science – business – science".

The approach is systematic by examining the digital competitiveness as a result of innovations and the means of business identifiers of the company in a digital business environment; it contains theoretical and practical knowledge and skills in academic research as business aspects.

A key factor for achieving and maintaining sustainable digital competitiveness of the company is the intellectual property system for the protection of ICT-based innovations and for protection of the company's business identifiers. This is the focus of the current scientific paradigm of "company digital competitiveness" with a key factor intellectual property rights of the company.

3.3. Methods of achievement 'company digital competitiveness'

Methods in the process of achievement 'company digital competitiveness' are divided into methods of analysis and methods of synthesis.

3.3.1. Basic methods of analysis:

- scientific systematization of existing concepts;
- content and comparative analysis;
- historical-logical analysis;
- descriptive analysis;
- comparative analysis of the practice in Bulgaria with that practice abroad;
- expert evaluation;
- induction and deduction;
- analysis of database on espacenet of the EPO, of the Bulgarian Patent of the Office and EUIPO;
- derivation of quantitative and structured by indicators trends; conclusions for the past period; expert assessments for the next period;
- SWOT of business environment and identification of potential for development of companies in Bulgaria;

3.3.2. Basic synthesis methods:

- Model (structured) for digital competitiveness;
- Model of digital competitiveness and the place of IPR (application of IP score and IP portfolio);
- Method of writing a scenario and creating a model for managing digital competitiveness focused on IPR.

4. Model for Assessment of the Company Digital Competitiveness Focused on IPR

The proposed model is a principal, applicable in updating the assessment of the general and specific business environment and in refining for each specific business entity (model based on Markova, 2013; Markova, 2018b; Markova, 2018c; Markova, 2019). The model consists of processes and results of an assessment of external and internal factors.

4.1. Assessment of external factors for the company

4.1.1. position of a country in the map for the national digital competitiveness – from IMD, from other sources, from BCCI and Center for the Democracy Study, BAS, UNWE, others.

4.1.2. Political stability of the country and the region – political system, legal system, institutional trust, educational system, social system.

4.1.3. Economic system of the country:

- digital connectivity of the country;
- national infrastructure for the development of the ICT sector;
- information on scientific technological results in the ICT sector;
- protection through IPR and accessibility of scientific technological results in the ICT sector;
- information on macroeconomic indicators relevant to the ICT sector;
- information on statistical indicators relevant to the ICT sector;
- incentive mechanisms at a national level for the development of the ICT sector;
- access to national and European programs to promote the development of the ICT sector;
- accessibility to European programs to promote the development of the ICT sector;
- availability of capital for investment purposes, incl. institutional and banking preferences.

Each of the three indicators and their 10 sub-indicators is evaluated on a scale of limits of 1 to 5 in ascending order of the dichotomy: weak/unsatisfactory – strong/satisfactory.

4.2. Assessment of the internal factors of the company

4.2.1. Factor "Technology"

1. Created new technologies relevant to the ICT field.
2. Introduced new technologies, relevant to the ICT field.
3. Implemented advanced technologies in the ICT field.
4. Intellectual property rights over the company's own technologies in the ICT field (number of patents, incl. patent applications, number of utility models, others).
5. Number of national to international patents and utility models.
6. Ratio of national to international patents and utility models.
7. Created new products based on introduced new technologies in the ICT field.
8. Advanced products on implemented technologies in the ICT field.
9. Number of received licenses for products or technologies in the ICT field.
10. Number of received licenses for products or technologies in the ICT field.

4.2.2. Factor "Company staff"

1. Number of employees of the company with technical education from high school in the ICT field.
2. Number of employees of the company with university technical education in the ICT field.
3. Ratio of employees of the company with professional technical education or university education in the ICT field to the total number of employees, engaged in activities of the company in the ICT field.
4. Number of employees of the company with professional practical training abroad in the ICT field.
5. Number of employees engaged in activities of the company in the ICT field.
6. Ratio of the total number of employees of the company with professional technical education or university education in the ICT field and other employees to the total number of employees of the company.
7. Structure of all employees of the company, engaged in activities in the ICT field age, gender and education.
8. Number of inventors or authors of other innovations in the ICT field by the company.
9. Number of the company's research staff, engaged in activities related to ICT.
10. Number of managers – middle and high management with innovations in the ICT field.

4.2.3. Factor "Capital"

1. Constant capital – machines, equipment, and facilities related to ICT.
2. Working capital related to ICT.
3. Investments in the company, related to ICT – general and structure.
4. Costs for training of staff in ICT.
5. Costs for acquisition of intellectual property rights in ICT.
6. Costs for acquiring licenses in areas related to ICT.
7. Costs for consultations in the field of ICT.
8. ICT-related capital income.
9. Efficiency of investments.
10. Return on investment.

4.2.4. Factor "Competitive position of the company on the market"

1. Competitive evaluation of the products offered by the company (scientific technological level, phase of the product life cycle, costs for implementation, maintenance, service, efficiency of incurred costs).

2. Competitive position on the domestic market regarding the goods/services offered by the company.
3. Competitive position on foreign market (including the market of EC and Economic area countries/regarding the goods) services offered by the company.
4. Position in relation to the closest competitor – matrix of Boston consultancy group, Hofer, others.
5. Position of the company on the market of scientific technological products – number protected by IPR; number of implemented IP rights and number of licensed IP rights.

4.2.5. Factor "Future development"

1. Internet network of the company – security, nature: high speed or not.
2. Intranet network of the company – exists or not.
3. Provision of the company's employees with PC, laptops, mobile phones with internet connection.
4. Provision of the employees of the company with PC, laptops, mobile phones with internet connection.
5. Created/planned communication halls, centres and points in the company, including cloud platforms and positioning.
6. Created/planned an internet site of the company.
7. Created/planned domain name of the company (with or without registration).
8. Protection of a website with intellectual property rights.
9. Protection of the domain name of the company with intellectual property rights.
10. Training and coaching seminars for overcoming the resistance (logical, psychological, social) in the company against the new ICT.

All indicators for the different groups of factors must be quantified in absolute or relative values.

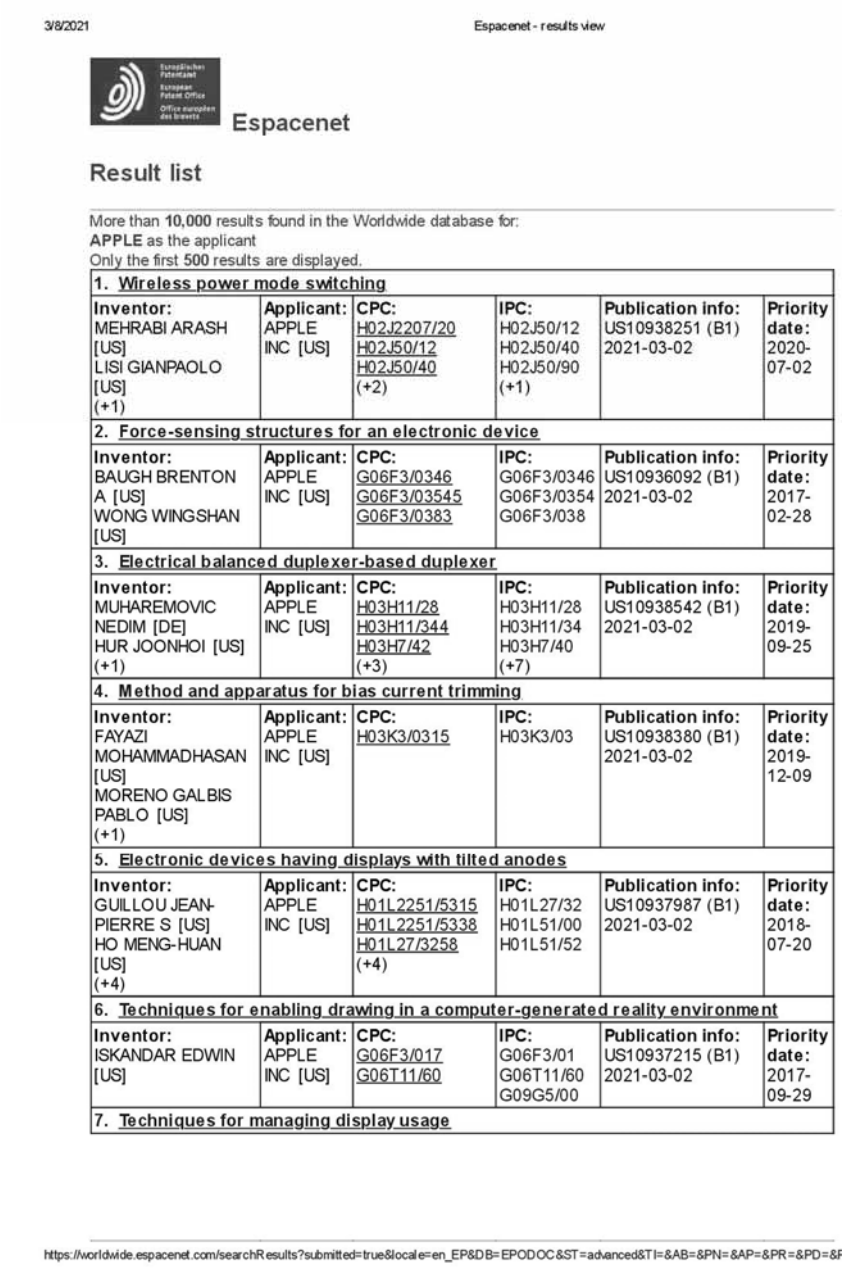
Each of the indicators has a relevant weight of 0.1 to 0.2 so that the total expression for each indicator forms 1. According to the complex model may be obtained a maximum score of 5.

When analyzing IPR (intellectual property rights) the author has into account intellectual property rights, certified by a document: patent or certificate. Rights arising under the copyright and related rights law and know-how, protected through so-called factual monopoly (known as trade secret also) are not as a subject of this analysis.

Examples[5]: APPLE Inc. founded in 1976 – 4th place in the ranking of 500 successful companies in the United States for 2020, at the beginning of March, 2021 holds over 10,000

[5] Examples are based on the author's current research for patents, European TMs and registered EC designs of the official sites of EPO and EUIPO: www.epo.org/patents and www.euipo.europa.eu/esearch.

patents (included patent applications) as some of the last published on the EPO website are shown below:



3/8/2021 Espacenet - results view

Espacenet

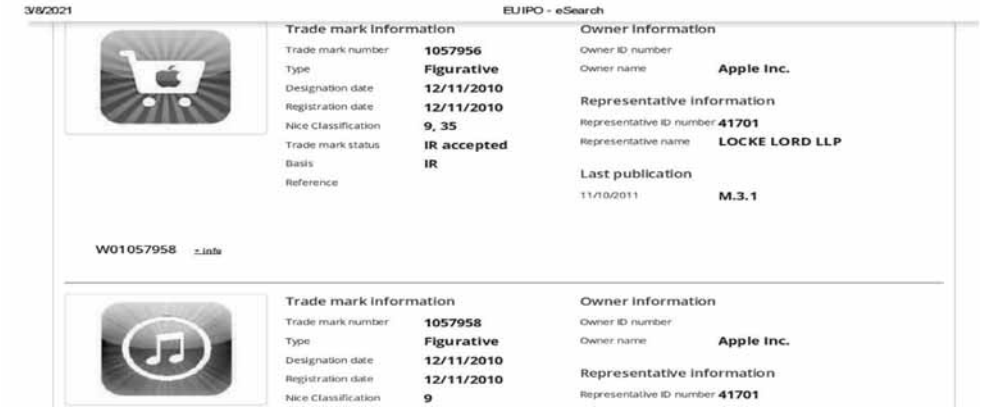
Result list

More than **10,000** results found in the Worldwide database for:
APPLE as the applicant
Only the first **500** results are displayed.

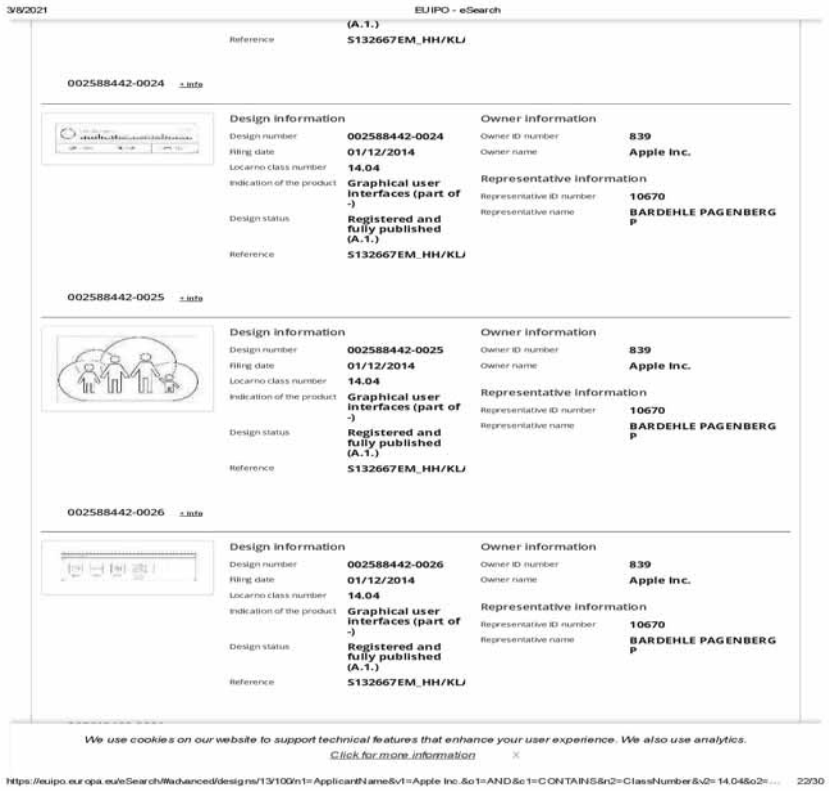
1. Wireless power mode switching					
Inventor: MEHRABI ARASH [US] LISI GIANPAOLO [US] (+1)	**Applicant:** APPLE INC [US]	**CPC:** H02J2207/20 H02J50/12 H02J50/40 (+2)	**IPC:** H02J50/12 H02J50/40 H02J50/90 (+1)	**Publication info:** US10938251 (B1) 2021-03-02	**Priority date:** 2020-07-02
2. Force-sensing structures for an electronic device					
Inventor: BAUGH BRENTON A [US] WONG WINGSHAN [US]	**Applicant:** APPLE INC [US]	**CPC:** G06F3/0346 G06F3/03545 G06F3/0383	**IPC:** G06F3/0346 G06F3/0354 G06F3/038	**Publication info:** US10936092 (B1) 2021-03-02	**Priority date:** 2017-02-28
3. Electrical balanced duplexer-based duplexer					
Inventor: MUHAREMOVIC NEDIM [DE] HUR JOONHOI [US] (+1)	**Applicant:** APPLE INC [US]	**CPC:** H03H11/28 H03H11/344 H03H7/42 (+3)	**IPC:** H03H11/28 H03H11/34 H03H7/40 (+7)	**Publication info:** US10938542 (B1) 2021-03-02	**Priority date:** 2019-09-25
4. Method and apparatus for bias current trimming					
Inventor: FAYAZI MOHAMMADHASAN [US] MORENO GALBIS PABLO [US] (+1)	**Applicant:** APPLE INC [US]	**CPC:** H03K3/0315	**IPC:** H03K3/03	**Publication info:** US10938380 (B1) 2021-03-02	**Priority date:** 2019-12-09
5. Electronic devices having displays with tilted anodes					
Inventor: GUILLOU JEAN-PIERRE S [US] HO MENG-HUAN [US] (+4)	**Applicant:** APPLE INC [US]	**CPC:** H01L2251/5315 H01L2251/5338 H01L27/3258 (+4)	**IPC:** H01L27/32 H01L51/00 H01L51/52	**Publication info:** US10937987 (B1) 2021-03-02	**Priority date:** 2018-07-20
6. Techniques for enabling drawing in a computer-generated reality environment					
Inventor: ISKANDAR EDWIN [US]	**Applicant:** APPLE INC [US]	**CPC:** G06F3/017 G06T11/60	**IPC:** G06F3/01 G06T11/60 G09G5/00	**Publication info:** US10937215 (B1) 2021-03-02	**Priority date:** 2017-09-29
7. Techniques for managing display usage					

https://worldwide.espacenet.com/searchResults?submitted=true&locale=en_EP&DB=EPODOC&ST=advanced&TI=&AB=&PN=&AP=&PR=&PD=&PA=APPLE... 1/4

The company APPLE Inc. owns over than 1100 brands registered in the EU in EUIPO, some of which are shown:



The company possesses 1,083 designs registered in the EUIPO, of which 2722 in the field of computer display, icons and graphics, for example, the following:



The Chinese company world-famous with achievements in the field of ICT, 'HUAWEI TECHNOLOGIES' founded in 1986, following the identical indicators, is presented as:

- Patents (included patent applications) over than 10,000, the latest of which are listed below:

Espacenet

Result list

More than **10,000** results found in the Worldwide database for:
HUAWEI as the applicant
Only the first **500** results are displayed.

1. METHOD, APPARATUS AND SYSTEM FOR PROVIDING SERVICE FOR TERMINAL BY USING BLOCKCHAIN					
Inventor: ZHANG YANPING [CN] HU WEIHUA [CN] (+1)	**Applicant:** HUAWEI TECH CO LTD [CN]	**CPC:**	**IPC:** H04W12/00	**Publication info:** WO2021037270 (A1) 2021-03-04	**Priority date:** 2019-08-30
2. OPTICAL COMBINER IN AUGMENTED REALITY AND RELATED DEVICE					
Inventor: GUO RUI [CN] LI GEN [CN] (+3)	**Applicant:** HUAWEI TECH CO LTD [CN]	**CPC:**	**IPC:** G02B26/10 G02B27/00 G02B27/09	**Publication info:** WO2021036525 (A1) 2021-03-04	**Priority date:** 2019-08-29
3. FINGERPRINT RECOGNITION APPARATUS AND ELECTRONIC DEVICE					
Inventor: HE HU [CN]	**Applicant:** HUAWEI TECH CO LTD [CN]	**CPC:**	**IPC:** G06K9/00	**Publication info:** WO2021036731 (A1) 2021-03-04	**Priority date:** 2019-08-30
4. ROAMING BILLING PROCESSING METHOD, APPARATUS AND SYSTEM					
Inventor: ZHANG YANPING [CN] HU WEIHUA [CN] (+1)	**Applicant:** HUAWEI TECH CO LTD [CN]	**CPC:**	**IPC:** H04W4/24	**Publication info:** WO2021037263 (A1) 2021-03-04	**Priority date:** 2019-08-30
5. NETWORK MANAGEMENT METHOD AND DEVICE					
Inventor: LIU JINLIANG [CN] ZENG XINZONG [CN] (+1)	**Applicant:** HUAWEI TECH CO LTD [CN]	**CPC:**	**IPC:** H04L12/24	**Publication info:** WO2021037133 (A1) 2021-03-04	**Priority date:** 2019-08-30
6. CHANNEL COMPENSATION METHOD AND DEVICE					
Inventor: ZHAO YANBO [CN] WANG JINSHAN [CN]	**Applicant:** HUAWEI TECH CO LTD [CN]	**CPC:**	**IPC:** H04L25/02 H04L25/03	**Publication info:** WO2021037255 (A1) 2021-03-04	**Priority date:** 2019-08-29
7. OBJECT IDENTIFICATION METHOD AND APPARATUS					
Inventor: PAN GANG [CN] LIU QIANHUI [CN] (+6)	**Applicant:** HUAWEI TECH CO LTD [CN]	**CPC:**	**IPC:** G06K9/46	**Publication info:** WO2021037125 (A1) 2021-03-04	**Priority date:** 2019-08-30
8. VEHICLE-MOUNTED APPARATUS AND VEHICLE					
Inventor: MAO YONGHAI [CN] HU ZHENMING [CN] (+2)	**Applicant:** HUAWEI TECH CO LTD [CN]	**CPC:** H05K5/0004 H05K7/1417 H05K7/20172 (+4)	**IPC:** H05K7/20	**Publication info:** WO2021037206 (A1) 2021-03-04	**Priority date:** 2019-08-30

- European marks – 1901

Huawei Kirin

Trade mark information

Trade mark number	**1304727**
Type	**Figurative**
Designation date	**25/03/2016**
Registration date	**25/03/2016**
Nice Classification	**9**
Trade mark status	**IR accepted**
Basis	**IR**
Reference	

Owner information

Owner ID number	
Owner name	**HUAWEI TECHNOLOGIES CO., LTD.**

Representative information

Representative ID number	
Representative name	

Last publication

19/01/2017	**M.3.1**

- Designs on the territory of the EU countries are 1083 as a number, part of which are in 14-04[6] – 286

Design information

Design number	**006378709-0001**
Filing date	**15/04/2019**
Locarno class number	**14.04**
Indication of the product	**Graphical user interfaces**

Owner information

Owner ID number	**162603**
Owner name	**Huawei Technologies**

Representative information

Representative ID number	**15194**

These facts and examples of the IPR activity of well-known companies APPLE Inc. and Huawei Technologis – world leaders in the field of ICT[7] unequivocally lead to a proven strategy for digital competitiveness focused on IPR.

This model will be used in the complex analysis of the leading Bulgarian companies operating in ICT sector and as a base to form a company strategy for digital competitiveness with variants, criteria of acceptance, change and application in different business environment conditions.

[6] 14-04 – Communicative means, screen displays and icons.

[7] The author does not neglect other successful companies in ICT field. These companies are shown in the business magazines in 2020, reasonable these companies are objects of IP research and presented DBs of IP rights owned by them.

III. Method For A Formation The Company Digital Competitiveness Strategy Focused On Ip Rights

The proposed methodology is basic and could be applied in a specific business unit in accordance with its actual peculiarities in full or partial/limited version. To present the principal method for the formation of the company's digital competitiveness strategy, focused on IP rights /IPR/ we should start a process with a picture of the common business environment.

1. General Characteristics of Modern Digital and Global Market Environment[8]

Modern and current market researches of the successful companies and key factors for their success provide the following characteristics of the business environment in which the company operates and develops:

1.1. "Maturity of 20th-century technologies" and the introduction of new technologies

Products such as cars, Wi-Fi technology, TV equipment, computers and many others are in the "maturity" phase of the life cycle.

The possibilities of the respective technologies have been exhausted. In the field of technology – AI, digital transformation, block-chain technologies the designed new products electric, hybrid cars quickly reach maturity and call new solutions like the self-driving vehicle.[9] Then new market and IP research and creativity of a new higher order are needed.

1.2. Shortening the product life cycle to the "self-cannibalism" phase in the product portfolio of technology companies

At the end of the 20th century, the 24-month R&D cycle in computer technology was reduced to 10 months. Today, in the 1920s, the "project-market" cycle for high-tech industries is reduced to 6-8 months, and the full "new product idea-market" cycle, for example, for IBM products, is not more than 1 year. In the competition for innovation, companies abandon their products or modify them in such a short time that the product life cycle changes greatly and the phenomenon of "self-cannibalism" is identified by companies for their own products.

1.3. Globalization and de-globalization of the complex world market

The processes of consolidation of the world market led to the end of the 20th century and created conditions for crises in the restriction of trade relations in crisis-emerging

[8] They are presented in basic terms, non-exhaustively and are a priority for highly dynamic products and markets. By product we mean goods and services.
[9] www.epo.org/report.

environmental factors: climate, biotechnology, health. This creates a tendency towards deglobalization in certain product markets, observed in the last 10 years.

1.4. Strong market fragmentation and product personalization

The market structure is changing. New segments are emerging, the demographic structure and market demand are changing: the share of single-member families, "mother and child" families, unemployed families, etc., is increasing. This requires accurately targeted marketing and targeted products.

1.5. Competition and a strong influence of social networks, influencers, digital and viral marketing

There is intense competition for each market segment. It is difficult to predict the emergence of new companies entering the market. Technologies do not remain the exclusive property of the companies that created and protected them for a long time. Silicon chip, a new kind of plastic, the latest generation of robots, are fast becoming universal. The latest technological advances are maintained for a period of not more than 5-10 years as protection, after which they become publicly accessible knowledge.

1.6. Entered the market of new marketing and technological tools for product/market search – chabot, voice search, smart speakers, 'cam find' and many others.

2. IPR as a Focus of the Company Digital Competitiveness Strategy

The development of a complex business strategy focused on IPR is based on important assumptions such as the following:

2.1. IPR is an important business tool proved with the basic economic functions.

IP is an object of implementation in the company activities. In this case, IP is a source of:

- revenue generation;
- cost reduction;
- strategic market position.

2.2. IPR is targeted at the achieving of the following business goals:

- to minimize risk, or explain how to protect IP objects;

- to realize cost reduction and receive a profit or explain what, when and how to implement and invest IP objects in business;
- to sustain the strategic market position or explain what products are appropriate for which market niches.

For the company management board, the main business indicators of the obtained IP objects are the following:

1. IP as complex of different objects, their relative share and significance, evaluation and forecast for the economic benefit.
2. IP as an intangible asset – the financial value and the market value for IP as a whole and for each object of the IP portfolio.
3. IP as a source of the competitive innovation based on differentiation for the company in the future.

More often the practical task for the company management is how to use effectively IP and whether to convert it into economic benefit or into cash flow.

There are many alternatives in this respect – sell it, license it, use it as a basis for a joint venture, use it for a strategic alliance, use it in order to extract premium price and profit, create a new spin-off department based on IP object.

The company management sets the following major business goals for the obtained IP objects:

- to implement IP object in production and in a trade–direct innovation;
- to license some of the IP objects – to obtain an additional economic benefit in the mode of license payments.
- to take part in the business cooperation with IP object;
- to sustain the good market position and company goodwill;
- to develop the obtained level in the future R&D process and results;
- to increase the company's competitiveness.

3. Strategic Goals for a Formation the Company Digital Competitiveness Strategy Focused on IPR

In these highly dynamic, typified by product and geographical segments and difficult to predict market conditions, the company's strategy for digital competitiveness with a focus on IP is fundamental, and is designed to implement a system of sub-goals, which can be divided into two major groups:

3.1. Financial goals

3.1.1. Assists in increasing the economic benefit for the company. Through increased market share, the norm and the total mass of profit from the company's activities through the mechanisms of "patent monopoly" and "prestigious pricing".

3.1.2. Assists in establishing conquered market positions and breaking through new market segments.

3.1.3 Assists in the implementation of licensing penetration of markets in which protectionist barriers are placed and provides economic benefits for the company from the provision of licenses and forms of scientific, technical and industrial cooperation.

3.1.4. Provides an increase in resource allocation for capital and human resources of the company.

3.2. Non-financial goals

3.2.1. Ensures the imposition of product and company identity, differentiation and consumer preferences.

3.2.2. Helps to build and increase a favourable company image of an innovative company and a company that respects and values intellectual property.

3.2.3. Assists in creating, imposing and developing the company image and good name.

3.2.4. Helps to implement the strategy for participation in the transfer of intellectual property.

For companies operating in the field of ICT sector and others in the field of high technology, the strategy for digital competitiveness is the main, leading in the implementation of the business strategy of the company. For companies operating in conventional less relevant to ICT and other areas of high technology, this strategy is rather functional and in support of the company's business strategy.

A complex strategy of digital company competitiveness has to be formed following the basic methodological points:

1. This strategy is focused on the possessed IP rights of the company.
2. IPR is an important intangible business asset.
3. The company management is focused on IP rights as a great company source to create economic advantages, benefits and profit, to obtain a new and sustain the already achieved company competitive position on the specific product or service niche.
4. The complex strategy of the company's digital competitiveness consists of 2 main sub-strategies regarding the main groups of IPR of the company – sub-strategy for the company innovations and sub-strategy for the company identifiers.

Based on the results of the analysis, the company management should form a sub-strategy for managing the company product and technological innovations regarding the achieved and planned IP rights for these and the active and planned company innovative strategy.

4. Process of Forming of the Company Digital Competitiveness Strategy Focused on IPRs

The process of formation of the company digital competitiveness strategy focused on IP rights involves two principal steps:

1. Complex analysis of IP rights in innovations and in BI as a result of the application of the model 'costs – benefits', model of IP score and a model of IP profile.
2. Creation of strategic variants for the company digital competitiveness strategy focused on IPR.

Based on the presented author's point of view on page 5 each of these two steps is divided into two directions: for company innovations and for company business identifiers.

4.1. Regarding point 1 and point 2 for the company innovations

To form a sub-strategy for the company innovations, the management should follow the next steps:

4.1.1. Complex analysis of IPR in innovations

The complex analysis of the IP in innovations should start with the well-known marketing tools of the 'product – place' matrix and SWOT analysis and then the effective specific IP instruments of IP research of the patent, utility model and design information and IP score shall be applied.

First of all, some answers to important business questions shall be found, such as (for instance):

1. What is the general business strategy of the company – to be a leader, to be a follower?
2. What are the company products for each market niche?
3. What is the compatible position of each company product?
4. Who are the direct competitors in the market niche?
5. What are the IP rights for these products – for our company and for the direct competitors?
6. What is the product life cycle stage for our product and for the competitors' product?
7. Are there sources for competitive innovations of the company products?

As a result, company management will obtain complex information about the innovations and BI, which are given below.

Thus, company management obtains a complete picture of quantified indicators on the possessed product innovation with IPRs given below:

1. Innovative solutions: principally new, new and upgraded – an absolute number and relative proportion of each species in the general structure.
2. Realized production based on the principally new, new and upgraded solutions – total volume in current prices and relative share of each of the sold products in the general structure.
3. Expenses made for the creation, development, production and market launch of products based on new principle, new and upgraded solutions – total volume, stages of creation, development, production and market launch of products based on principally new, new and upgraded solutions.
4. Expenses made for the acquisition of intellectual property rights for the new principally, new and upgraded solutions – general and by kinds of intellectual property and the types of decisions.
5. Revenues generated from the intellectual property rights for the principally new, latest and advanced solutions – general and by types of the license agreements, joint ventures, and sale of rights.
6. Profitability of the production, based on the principally new, new and upgraded solutions – total and by types.
7. Relative indicators: The profitability of products based on the product innovation to average profitability of the company products.
8. Economic evaluation of the product innovation – expenses and profit – total and by type of decisions.

As a core of the analysis as a next step, the company management board should pay attention to the process of analyzing the IP management in innovations.

The obtained level in IP for the company product innovations is defined in terms of:

- IP portfolio: patented inventions, utility models, designs[10];
- Recent actual value of the IP portfolio (Value of IP should be updated at least annually by an IP assessor).

[10] Know-how or object of copyright not included. The author means national, European and international documents for protected IP rights in inventions, UM and designs (number, relative share and respective protection periods).

Indicators for assessment of company innovations	Qualitative assessment
Sub strategy in innovations and IPRs in these	aggressive or offensive
Product position for each product	good – bad
Compatible position for each company product	strong – weak
Stage of the life cycle for the company products	introducing, growth, maturity, decline
IP rights for each company product	patented inventions, registered UM and/or ID
Company costs and/or resources for the product development in future	Low – high, own – foreign/borrowed
Product image (general or specific for the niche)	Good-bad

As a first step, the company needs to extend the identified IP portfolio with regard to:

- Objects (I, UM. ID, others);
- Costs for their protection (costs for obtaining IP protection and for sustaining of IP protection);
- Forecast of the future economic benefits from new objects (well based on market, product and IP research);
- What are the expectations of value for the future IP portfolio and of profit of their realization?

As a result, the company management board obtains a good overall picture of its market competitive position, IP portfolio, profitable products and prospective innovations for the purpose of the company's future sustainable development.

4.1.2. A creation of strategic variants for the company innovations

The company management can use all those alternatives in a cumulative way and obtain a synergic business effect. The choice of strategic options will take into account a set of criteria:

- market criteria: demand for product, development, perspectives of the market competitiveness of the product;
- product criteria – product characteristics, price and signs of protected intellectual property;
- production criteria – availability of material, financial, human resources and innovation sources;
- orientation of the formed variants to the achieved company profile, consisting of the general company strategy and mission, goals and image.

The company management should take strategic decisions regarding the innovations as follows:

1. To implement the principally new, new and upgraded solutions.

2. To license some of the IP objects owned for the obtained innovations in the purpose to receive additional economic benefits and additional economic benefits such as license payments.
3. To take additional efforts, including marketing activities, to use the obtained innovations.
4. To sustain the achieved good image of the company based on the obtained innovations.
5. To take a new way of protection and combine some of the obtained IPR in the company innovations.
6. To increase the company's competitiveness based on the obtained innovations.

4.2. Regarding point 1 and point 2 for the company business identifiers

To form a sub-strategy for company business identifiers, the company management should follow these steps:

4.2.1. Complex analysis of IPRs in business identifiers (BI)

The complex analysis of the IPRs in business identifiers should start with the well-known management tool of the 'expenses – benefits' for product – place' matrix and taking into account the already known results of the SWOT analysis.

First, some answers to important business questions should be found, such as:

1. What is the general business strategy of the company – to be a business unit independently or to be a part of a bigger business unit – a structural unit of a corporation?
2. What are the main company business identifiers for each market niche?
3. What are the leading company business identifiers (BI) – company trademark, logo and/or combination of such elements?[11]
4. What is the obtained IPR in BI separately for each of these?
5. Are the IP rights for these BI – licensed and or sold; kind of economic effect?
6. What is the life cycle stage for each of the company BI?
7. Are there planned new BI for the different product and/or for the company as a whole?

[11] BI may be protected as trademarks, logos and company web site – industrial design as IP object.

Indicators for assessment of company BI	Qualitative assessment
Sub strategy in innovations and IPRs in these	aggressive or offensive
Points level for the each of the BI used by the company: trademarks, logos	low – high
Compatible position for each of the company BI	strong – weak
IP rights for each of the company BI	registered TM and/or ID
Company costs and/or resources for the launching/development efforts	low – high
Complex image /company products – general and for the specific niche/products	good – bad

As a result of this analysis, the company management may obtain a complete picture of the company BI – used, planned and needed for the achievement of future business goals.

4.2.2. A creation of strategic variants for the company BI

The company management can use all those alternatives in a cumulative way and obtain a synergic business effect. The choice of strategic options will take into account a set of criteria:

- market criteria – demand for products with a BI, development and perspectives of the market competitiveness of this product with used BI;
- product criteria – product characteristics, price and signs of protected intellectual property as TMs, logos, etc.;
- marketing criteria – availability of financial and human resources to provide additional marketing activities in BI;
- orientation of the formed variants to the achieved company profile, consisting of the general company strategy and mission, goals and image.

In addition, the sub-strategy of company BI can perform valuable economic functions such as achieving a steady identification and differentiation of the company, boosting its positive image and competitiveness.

The company management should take strategic decisions regarding the innovations, as follows:

1. To implement new BI for products and in trade (implementation, licensing).
2. To license some of the IP objects owned for the current BI to receive additional economic benefits and additional economic benefits such as license payments.
3. To make additional efforts, including marketing activities, to launch these BI.
4. To sustain the achieved good image of the current BI protected as IP rights.
5. To develop the obtained level in company BI through new way of protection and to combine some of the obtained IPRs in the company BI.
6. To increase the company competitiveness based on the active marketing activities in BI.

4.3. Regarding the complex digital competitiveness strategy focused on IPR

The methodical scheme for the formation of a complex digital competitiveness strategy of the company consists of the following sub-stages:

1. Use of the collected analytical and forecast information.
2. Integration of developed sub strategies for company innovations and for company BI.
3. Completion of a complex strategy and creation of options for possible strategies such as the use of strategic maneuvering.
4. Assessment of the expediency and strength of the formed complex strategy regarding the multi criteria matrix.

The assessment of the strength and the adaptability of the already formed strategy with strategic variants depends on many objective and subjective factors shaping the environment in which the company operates and develops.

The company management should take into account the influence of the following factors:

- competition – general and specific;
- market – general globalized and on the specific niche;
- current business environment;
- profit;
- marketing costs;
- process of creating innovations in the company and new BI;
- research and production costs and capital investments of the company;
- after-sale service and many others factors existing nowadays.

Conclusion

The presented conceptual author's view for the company digital competitiveness focused on IP rights includes a concept for the "company digital competitiveness" with a place and importance of intellectual property rights in a company digital competitiveness and a model for assessment of the company's digital competitiveness focused on intellectual property rights. It is followed by a method for the formation of the company's digital competitiveness strategy as a scientific instrument to achieve and sustain the company's competitive place in a digital business environment.

The methodical scheme for the formation of the complex digital competitiveness strategy of the company focused on IP rights consists of the models for formation and integration of sub-strategies for the company innovations and for the company business identifiers in a complex business strategy. This creates options for strategies such as the use of strategic manoeuvring as a practical business tool.

Taking into account the influence of the factors of competition, market, current business environment and the general economic indicators presented in details that were followed in the created sub-strategies for innovations and business identifiers, the company management can form and implement a complex digital competitiveness strategy focused on IP rights in order to sustain competitiveness for a sustained competitiveness in the knowledge-based economy and in the global digital competitive environment.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES

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OIL PRICE AND PUBLIC EXPENDITURE RELATIONSHIP IN NIGERIA: DOES THE LEVEL OF CORRUPTION MATTER?[5]

We employ the non-linear autoregressive distributed lag (NARDL) approach to examine if the oil price and public expenditure relationship are dependent on the level of corruption using Nigeria's quarterly data during the 1996-2019 period. The result of the NARDL-bounds test to co-integration demonstrates that there is a long-run relationship between the variables, and we found evidence of long-run asymmetry in this relationship. The estimation results indicate that both positive and negative shocks to oil price have a significant positive effect on public expenditure in the long run, and the impact of oil price on public expenditure depends on the level of corruption. In addition, the marginal effect of oil price on public expenditure varies at different levels of corruption. Other important factors that drive public expenditure in Nigeria, in the long run, include spending on internal security and debt service. Based on these outcomes, we proffer some policy recommendations.
Keywords: oil price; public expenditure; corruption; NARDL; Nigeria
JEL: E62; E64; H50; D72; D73

1. Introduction

One of the main reasons governments are put in place is to raise the living standards of their citizens via the provision of socio-economic infrastructure, including education and health facilities, and so on. To this end, public expenditure has long been recognized as a major tool governments use to manipulate resource allocation, stimulate and sustain desired levels of economic activity (Shonchoy, 2010). In addition, there is a general consensus that rising public expenditure in developing economies is essential for sustainable and steady productivity and economic growth because it translates to improved social wellbeing, alleviation of poverty, and reduction of unemployment (Kanano, 2006; Shonchoy, 2010;

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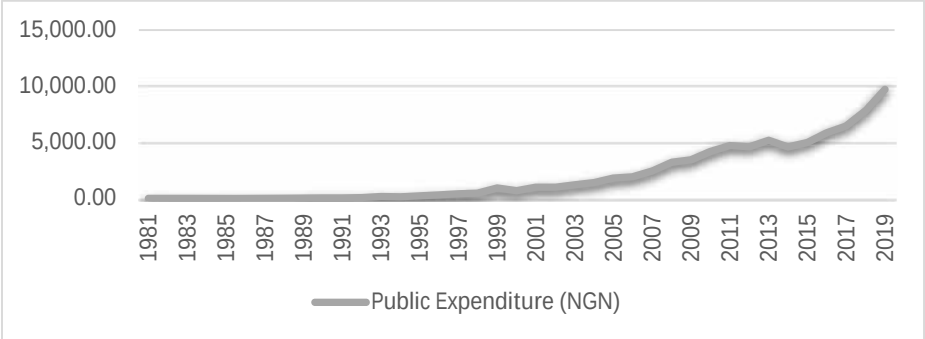
World Bank, 1994). Informed by this line of thought, successive governments in Nigeria have continuously favoured the expansion of public expenditure. Available statistics show that aggregate public expenditure (in Naira, NGN) maintained a rising trend in the last four decades except in a few years. From NGN11.41 billion in 1981, total public expenditure rose to NGN949.7 billion in 1999, NGN2.5 trillion in 2007, NGN5.2 trillion in 2013, and NGN9.7 trillion in 2019 (Figure 1).

Figure 1

Plots of aggregate public expenditure in Nigeria in billions of Naira

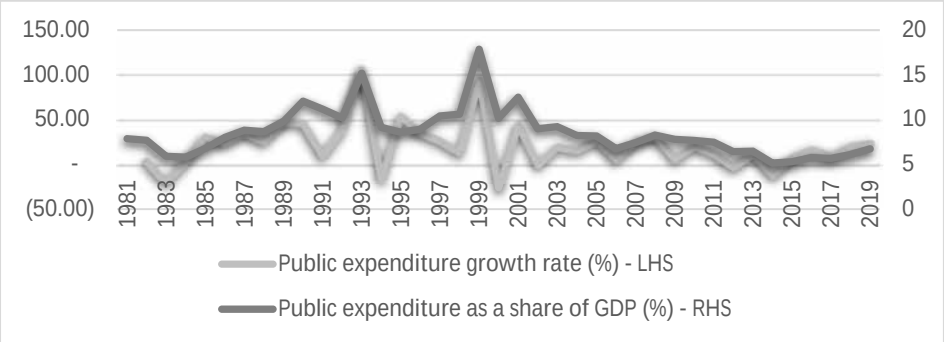


Source: Authors' computation based on the data collected from the Central Bank of Nigeria, 2019.

But in terms of growth rate and as a share of GDP, public expenditure showed an unimpressive performance as it increased sometimes and declined in other periods during the period under review. From 7.88 percent in 1981, public expenditure share in GDP rose to 17.85 percent in 1999, before it declined to 10.16 percent in 2000 and further to 5.15 percent in 2014. The share of public expenditure in GDP was 6.73 percent in 2019. In the same manner, public expenditure grew by 4.46 percent from 1981 to 1982 and further by 106.07 percent in 1993. Thereafter, its value fell by -26.02 percent in 2000, but it later rose by -11.53 percent in 2014. The growth of public expenditure was 24.33 percent in 2019 (Figure 2).

Figure 2

Plots of public expenditure growth rate (%) and as a share of GDP in Nigeria

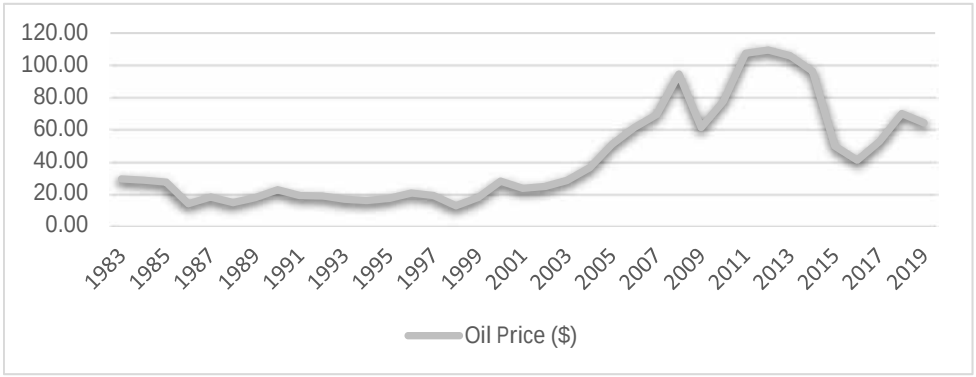


Source: Authors' computation based on the data collected from the Central Bank of Nigeria, 2019. Note: LHS and RHS denote left-hand side and right-hand side vertical axes, respectively.

Whereas the desire of successive Nigerian governments has been to sustain the growth of its expenditure occasioned by the rising demand for social and economic infrastructure, including the increasing need to provide internal security for the people and the nation, dwindling fortunes of the oil sector (the country's main source of revenue or income generation) makes it difficult to achieve this important objective. Given that proceeds from exports of oil is a major source of income for the government of Nigeria, unstable oil prices can leave lasting adverse effects on the country's public expenditure (see Aremo, Orisadare and Ekperiware 2012). It has also been suggested that uncertainty about future oil revenues and variability of such revenues arising from changes in oil price can influence the level of public expenditure in oil-dependent countries as governments reassess their expected income streams (Abdel-Latif, Osman, Ahmed, 2018; Dizaji, 2014; Farzanegan, 2011; Mourad, Hadadah, 2019). In fact, most times, revenues have fallen short due to low oil prices Nigerian government was compelled to adjust its expenditure downward, the same way high oil prices have led to an upward adjustment in public expenditure (Orhewere, Ogbeide-Osaretin, 2020). Thus, public expenditure tends to fluctuate in response to changes in oil prices (Adedokun, 2018; Oriakhi, Iyoha, 2013). Available statistics from the Organization of Petroleum Exporting Countries (OPEC) illustrates that oil prices fluctuated during the 1996-2019 period (Figure 3).

Figure 3

Plots oil price in United States dollars ($)



Source: Authors' computation based on the data collected from OPEC, 2020.

Looking at the movements in oil price and public expenditure in Nigeria, it is possible that changing oil price is responsible for changes in Nigeria's public expenditure. Thus, it is important to embark on an empirical examination to ascertain if oil price dictates the direction of public expenditure in Nigeria.

Besides, it is possible that the oil price and public expenditure relationship depends on the level of corruption in Nigeria. Corruption does not only raise the cost of public expenditure, it also encourages investment in capital-intensive projects where huge bribes can easily be extracted (Delavallade, 2006; Gupta, Davoodi, Tiongson, 2000; Mauro, 1996, 1998; Tanzi, 1998). In addition, evidence suggests that oil-dependent economies are often characterized by corruption and rent-seeking, poor governance, among other things (Busse, Gröning, 2013;

Karl, 2007; Sala-i-Martin, Subramanian, 2013). Moreover, high corruption in oil-dependent nations comes with many consequences, including huge government revenue losses with its adverse effect on public expenditure (Al-Kasim, Søreide, Williams, 2008).

Nigeria is Africa's largest producer and exporter of crude oil, and revenues from oil sales/exports accounts for over 70 percent of the government's earnings. Nigeria's high dependence on the oil sector has made the country highly vulnerable to changes in oil price. In addition, despite being Africa's leading oil exporter, corruption remains a serious problem, that the Nigerian economy and its people are contending with and several authors have blamed it (corruption) for the country's low level of development (Abu, Karim 2021; Abu, Staniewski, 2019). Also, the oil and gas sector of Nigeria has not been insulated from corruption because major stakeholders and players in the industry, including the Department of Petroleum Resources (DPR), international oil companies, Nigerian National Petroleum Corporation (NNPC), Ministry of Petroleum, and the indigenes of the oil-producing communities have been accused of aiding corrupt practices in the sector (Pérouse de Montclos, 2018). This view lends credence to the claims of corruption and mismanagement, lack of transparency and accountability in the dealings of the oil industry in Nigeria (Abu, Staniewski, 2019; Ijewereme, 2015; Obuah, 2010; Rexer, 2019).

The foregoing discussion suggests that changing oil price in the face of massive corruption in a country can aggravate instability in public expenditure. More so, regardless of movements in oil price, oil revenue losses caused by corrupt practices can reduce a country's ability to carry out development programmes, as well as financing infrastructural development or maintaining public services (Pérouse de Montclos, 2018).

Despite experiencing instability in oil price and growth in public expenditure amidst relatively high corruption, researchers have done little to empirically examine whether the oil price and public expenditure relationship is dependent on the level of corruption in Nigeria. In fact, existing studies on Nigeria focused either on the impact of oil price on public expenditure (Adedokun, 2018; Aregbeyen, Fasanya, 2017; Aremo et al., 2012; Jibir, Aluthge, 2019; Mohammad, Sani, 2020) or the effect of corruption on public expenditure (Aregbeyen, Akpan, 2013; Nelson, Yebimodei, 2018; Onogwu, 2018). In essence, no study has been conducted to examine if the impact of oil price on public spending depends on the corruption level in Nigeria. Interestingly, the recent study by Farzanegan (2017) suggested that the effect of oil price on government spending depends on corruption in the Middle East and North Africa (MENA) countries.

Thus, this study is important and contributes to the existing literature in a number of ways. It is the first attempt (to our knowledge) to investigate whether the impact of oil price on public expenditure is dependent on the level of corruption in Nigeria. Second, the study employs the non-linear autoregressive distributed lag (NARDL) approach to investigate the asymmetric impact (positive and negative shocks) of oil price on public expenditure given the level of corruption. Following the introductory part, the remainder of this paper is structured as follows. Section two is the review of previous and related studies, and the third section consists of the theoretical framework and the model. Issues relating to methodology, econometric techniques and data are addressed in section four, while results are presented and discussed in the fifth section. The conclusion is taken up in the last section.

Review of Previous Studies on Public Expenditure, Oil Price and Corruption

Although a number of studies have been conducted to empirically explore the effect of oil price on public expenditure or the impact of corruption on public expenditure, little has been done to investigate if the effect of oil price on public expenditure depends on a country's level of corruption. The empirical literature review is discussed under the following categories.

Oil Price and Public Expenditure

Abdel-Latif et al. (2018) analyzed the effect of oil price shocks on public expenditures on health and education in Saudi Arabia during the 1990Q1-2017Q2 period using the NARDL model. The empirical results confirm a significant positive impact of oil price (positive and negative) shocks on public expenditure on health and education both in the short-run and the long run. In addition, Farzanegan (2011) examined the dynamic effects of oil shocks on components of public expenditure in Iran. Using the impulse response functions and variance decomposition analyses, the empirical results show a significant response of military and security expenditure to shocks in oil revenue and oil price. In contrast, the social spending component of public expenditure showed no significant response to shocks in oil revenue and oil price.

In Nigeria, Mohammad and Sani (2020) employed the NARDL model to examine the asymmetric impact of oil price on public educational expenditure over the 1990-2016 period. The empirical results indicate the presence of a cointegrating (long-run) relationship between oil price and public expenditure on education. Also, Orhewere and Ogbeide-Osaretin (2020) investigated the impact of oil price volatility on capital expenditure over the 1970-2018 period. Using the vector error correction model (VECM), the empirical evidence from the variance decomposition and impulse response function analyses confirm that oil price volatility and oil revenue impact capital expenditure negatively. In addition, the authors confirmed a positive impact of oil price shocks on public expenditure on education both in the short-run and the long run. On their part, Jibir and Aluthge (2019) evaluated the factors that influenced public expenditure in Nigeria during the 1970-2017 period using the ARDL-bounds testing approach. The results demonstrate that oil price and oil revenue have a significant positive influence on public expenditure in Nigeria.

Furthermore, Adedokun (2018) investigated the effect of oil (price and revenue) shocks on the dynamic relationship between public revenues and expenditures in Nigeria from 1981 to 2014 by employing the Structural Vector Autoregression (SVAR), unrestricted VAR, and VECM. The results of the variance decomposition and impulse response function analyses illustrate that oil price and oil revenue have a significant effect on public expenditure in the short-run and the long run. Moreover, Aregbeyen and Fasanya (2017) assessed the influence of oil price volatility on the fiscal behaviour of the government in Nigeria from 1970 to 2013 using the multivariate VAR model. The authors found that real oil price shocks have a significant positive impact on public expenditure in the short-run and the long run. In the same vein, Aremo et al. (2012) employed the SVAR technique to examine the effect of the oil price shock on fiscal policy in Nigeria over the 1980-2009 period. The authors concluded

that whereas oil price shocks have a strong influence on public revenue, they did not proportionally translate to an increase in public expenditure.

Corruption and Public Expenditure

A few studies have been conducted to examine the effect of corruption on public expenditure. For example, Ondřej and Agata (2015) employed a panel regression method to analyze the relationship between corruption and public expenditure in 21 Organisation of Economic Cooperation and Development (OECD) countries over the 1998-2011 period. The results show that a higher level of corruption leads to an increase in public expenditure on defence and public services. On the other hand, public expenditure on education, health, recreation, culture and religion decreases at higher levels of corruption. Also, Haque and Kneller (2008) evaluated the growth effect of public investment in the presence of corruption in 66 countries over the 1970-2000 period using the three-stage least squares method. The results reveal that corruption increases public investment and reduces the returns to public investment, thus making it (public investment) ineffective in raising economic growth. In the same manner, Delavallade (2006) employed the three-stage least squares technique to determine the influence of corruption on the structure of government spending in 64 developing countries over the 1996-2001 period. The results demonstrate that corruption has a significant negative effect on social expenditure (education, health and social protection). In addition, corruption has a significant positive impact on public expenditure on public services and order, fuel and energy, culture, and defence, but a significant negative effect on social expenditure (education, health and social protection). Moreover, Gupta, de Mello and Sharan (2000) used a panel regression method to examine whether corruption is related to high levels of military expenditure in 120 countries from 1985 to 1998. The results suggest that corruption is associated with higher military expenditure and arms procurement.

Also, Gupta, Davoodi and Tiongson (2000) employed the Ordinary Least Squares (OLS) estimator to investigate the effect of corruption on indicators of provision of healthcare and education services in 128 advanced and developing countries over the 1985-1997 period. The results show that high levels of corruption have an adverse impact on a country's child and infant mortality rates, percentage of low-birthweight babies in total births, and dropout rates in primary schools. Elsewhere, Mauro (1998) empirically assessed the impact of corruption on the composition of public expenditure across countries. The empirical evidence shows a negative and significant effect of corruption on public expenditure on education (and health). Similarly, Mauro (1996) analyzed the effects of corruption on economic growth, investment, and the composition of public expenditure in over a hundred countries using the OLS and Two-Stage Least Squares (2SLS) estimators. The results indicate that public expenditure on education and health, transfer payments, social insurance and welfare payments, and current public expenditure are influenced negatively by a high level of corruption, while public consumption expenditure excluding education and defence increases at high levels of corruption.

Some authors have also made an attempt to examine the impact of corruption on public expenditure in Nigeria. For example, Onogwu (2018) assessed the impact of corruption on public expenditure and revenue in Nigeria from 1997 to 2017 using the OLS technique. The

empirical results indicate that at low levels of corruption, public expenditure and revenue tends to increase. Also, Nelson and Yebimodei (2018) evaluated the effect of corruption on public expenditure in Nigeria from 1994 to 2017 using the VAR model. The authors discovered that recurrent and capital public expenditures were reduced at high corruption levels. In addition, Aregbeyen and Akpan (2013) employed the OLS technique to assess the long-term determinants of public expenditure in Nigeria from 1960 to 2010. The results reveal that recurrent public expenditure reduces at low levels of corruption, while the level of public capital expenditure rises at low levels of corruption.

Oil price and corruption

Efforts have also been made by authors to evaluate the relationship between oil price (or oil rent) and corruption in oil-dependent economies. For example, Vogel (2020) investigated the effect of oil windfalls on corruption and the types of candidates elected under democracy in Brazil between 2000 and 2017. The results show evidence of a significant positive impact of oil royalties on corruption. In addition, the effects of windfalls on corruption are larger after elections during booms and lower during busts. Furthermore, Aslaksen (2010) employed a panel estimation technique to investigate the effect of natural resource abundance on corruption in 149 developed and developing countries over the 1970-2006 period. The results indicate that energy rent is associated with high corruption in government. In addition, oil quantity, oil reserves and mineral rents are associated with high levels of corruption in government regardless of whether the country is democratic or undemocratic. Moreover, Arezki and Brückner (2009) examined the effect of oil rents on corruption and state stability in 31 oil-exporting countries during the 1992-2005 period. Using a panel fixed effects regression, the authors found that increases in oil rents lead to significant increases in corruption.

A survey of the literature suggests that emphasis has been on exploring the effect of either oil price or corruption on public expenditure, but not the effect of both (oil price and corruption) on public expenditure. The only exception is the study by Farzanegan (2017). The author examined if the effect of oil rents on public (military) expenditure depends on the level of corruption in the MENA region from 1984 to 2014 using fixed-effects regressions. The empirical evidence illustrates that the impact of oil rents on public expenditure is dependent on the level of corruption.

To our knowledge, no study has been conducted to examine whether the effect of oil price on public expenditure is dependent on corruption level, particularly in Nigeria. Therefore, the present study extends the literature by examining if the effect of oil price on public expenditure is dependent on the level of corruption in Nigeria using the NARDL estimation technique.

Table 1

A Summary of Empirical Literature Review on Oil Price, Public Expenditure and Corruption

Author(s)	Country	Period	Method/Model	Findings
Oil Price and Public Expenditure				
Abdel-Latif et al. (2018)	Saudi Arabia	1990-2017	NARDL	Oil price shocks influence public expenditure on health and education positively both in the short-run and long-run.
Farzanegan (2011)	Iran	1959-2007	VAR	Military and security expenditure respond significantly to shocks in oil price and revenue.
Mohammad and Sani (2020)	Nigeria	1990-2016	NARDL	Positive and negative oil price shocks are directly related to public education expenditure.
Orhewere and Ogbeide-Osaretin (2020)	Nigeria	1970-2018	VECM	Oil price and revenue are directly related to expenditure on education, and inversely related to capital expenditure.
Jibir and Aluthge (2019)	Nigeria	1970-2019	ARDL	Oil price and revenue contribute to an increase in public expenditure in Nigeria.
Adedokun (2018)	Nigeria	1981-2014	SVAR, VAR and VECM	Oil price and revenue are directly related to public expenditure in the short-term and long-term.
Aregbeyen and Fasanya (2017)	Nigeria	1970-2013	VAR	Oil price shocks lead to a significant increase in public expenditure in the short-run and long run.
Corruption and Public Expenditure				
Ondřej and Agata (2015)	21 OECD countries	1998-2011	FE	Corruption is an increasing function of public expenditure on defence and public services, and inversely related to expenditure on education, health, recreation, culture and religion.
Haque and Kneller (2008)	66 countries	1970-2000	3SLS	Corruption leads to an increase in public investment, but it reduces the returns to public investment.
Delavallade (2006)	64 developing countries	1996-2001	3SLS	Corruption reduces expenditure on education, health and social protection, while it raises expenditure on public services and order, fuel and energy, culture, and defence.
Gupta, de Mello and Sharan (2000)	120 countries	1985-1998	FE	Corruption is associated with higher military expenditure and arms procurement.
Gupta, Davoodi and Tiongson (2000)	128 advanced and developing countries	1985-1997	OLS	Corruption reduces public expenditure on health and education.
Mauro (1998)	Cross country	1982-1995	2SLS	Corruption is associated with a reduction in public expenditure on education (and health).
Mauro (1996)	Cross country	1982-1995	OLS and 2SLS estimators	Higher levels of corruption reduce recurrent expenditure on education, health and social security, but it increases public consumption expenditure excluding education and defence.
Corruption and Public Expenditure				
Onogwu (2018)	Nigeria	1997-2017	OLS	Low level of corruption raises the level of public expenditure and revenue, and vice versa.
Nelson and Yebimodei (2018)	Nigeria	1994-2017	VAR	Recurrent and capital expenditures are inversely related to high corruption.

Author(s)	Country	Period	Method/Model	Findings
Aregbeyen and Akpan (2013)	Nigeria	1960-2010	OLS	Low corruption level reduces recurrent expenditure, while it raises the level of capital expenditure.
Oil price and corruption				
Vogel (2020)	Brazil	2000-2017	2SLS	Oil royalties encourage corruption, and the effects of oil windfalls on corruption are larger after elections during booms and lower during busts.
Aslaksen (2010)	149 developed and developing countries	1970-2006	FE	Oil quantity, reserves and rents are associated with higher corruption levels in government regardless of whether the country is democratic or undemocratic.
Arezki and Brückner (2009)	31 oil-exporting countries	1992-2005	FE	Oil rent causes significant increases in the level of corruption.

Note: ARDL=Autoregressive distributed lag model; NARDL=Non-linear autoregressive distributed lag model; OLS=Ordinary least squares; 2SLS=Two-stage least squares; 3SLS=Three-stage least squares; FE=Fixed effects estimation technique; SVAR=Structural vector autoregression; VAR=Vector autoregression; VECM=Vector error correction model.

Theoretical Framework and Model Specification

There exists no comprehensive theory that explains the relationship between oil price and public expenditure or the possibility of oil price impact on public expenditure depending on a country's level of corruption. Thus, it is not easy to come up with a theoretical model or empirical method that is universally agreed upon by authors in exploring the dependence of oil price-public expenditure nexus on the level of corruption. Interestingly, it has been hypothesized that changes in oil price can influence the level of public expenditure (Abdel-Latif et al., 2018; Adedokun, 2018; Farzanegan, 2011; Jibir, Aluthge, 2019; Mohammad, Sani, 2020; Orhewere, Ogbeide-Osaretin, 2020). This argument is valid for Nigeria, where proceeds from oil exports account for over 70 percent of government earnings. In addition, recent studies have argued that since Nigeria and its people depend largely on the oil sector, they advocated for the inclusion of oil price/revenue as a potential determinant when modelling the Nigerian economy or any economic variables therein (Abu, 2017; Abu, Gamal, 2020; Abu, Karim, 2021; Abu, Staniewski, 2019).

Moreover, Farzanegan (2017) showed that the level of corruption matters in how oil rents affect public expenditure, while certain studies suggested that public expenditure is dependent on the level of corruption (Fiorino, Galli, 2012; Hwang, 2002; Mauro, 1996, 1997; Tanzi, Davoodi, 1997). From the foregoing discussion, it is clear that public expenditure (PEX) can be influenced by changes in the oil price ($OILP$), the level of corruption (COR), and the interaction between oil price and corruption ($OILP * COR$). Thus, to capture this relationship, we specify an econometric model of the form:

$$PEX_t = \sigma_0 + \sigma_1 OILP_t + \sigma_2 COR_t + \sigma_3 OILP_t * COR_t + \mu_t \quad (1)$$

In addition to these variables of interest, we consider other potential drivers of public expenditure. For instance, past studies have placed an important role on debt servicing

($DEBTS$) in explaining the behaviour of public expenditure (Aregbeyen, Akpan, 2013; Mahdavi, 2004; Shonchoy, 2010; Ukwueze, 2015). These authors' submission is consistent with the 'debt-overhang hypothesis' that public debt burden can have a direct impact on public expenditure (Krugman, 1988). In addition, we believe that the extent of insecurity and government spending on internal security ($INTS$) in a country can affect the level of public expenditure. From Boko Haram terrorists in the Northeast, to banditry and kidnapping in the Northwest, to conflicts between Fulani herdsmen and farmers in the North-central and parts of Southern Nigeria, these undesirables have dire consequences on the public expenditure decision on internal security. The rising trend in insecurity has compelled the Nigerian government to commit huge resources on an annual basis to combat insecurity in the country.

Furthermore, inflation (INF) can have a lasting impact on public expenditure. For instance, increases in the general price level can push up the cost of producing public goods and services, which in turn raise the level of public expenditure (see Jibir and Aluthge 2019). Also, rising inflation tends to reduce the real value of debt stock or raise interest payments on debt, leading to a higher debt stock (Cooray, Schneider, 2013), and as a result, higher public expenditure. It has also been suggested that in a country where the corruption level is high, extra costs arising from corruption may raise the general price level, leaving a dampening impact on the level of public expenditure (Timofeyev, 2011). Taking all of these variables into consideration, the public expenditure model is re-specified as:

$$LogPEX_t = \sigma_0 + \sigma_1 LogOILP_t + \sigma_2 COR_t + \sigma_3 LogOILP_t * COR_t + \sigma_4 LogDEBTS_t + \sigma_5 LogINTS_t + \sigma_6 INF_t + \mu_t \quad (2)$$

where Log is the logarithm of the variables which is taken to reduce skewness. Through the oil price and corruption interaction, the marginal effects of changes in the two variables (i.e. oil price and corruption) can be computed via the partial derivative of equation (3) with respect to oil price given as:

$$\frac{\partial LogPEX_t}{\partial LogOILP_t} = \alpha_1 + \alpha_3(COR_t) \quad (3)$$

If the two coefficients (i.e. α_1 and α_3) in the partial derivative turn out to be positive, it implies that increasing oil price at low levels of corruption (an improvement in control of corruption) would increase public expenditure, and vice versa. But if the two coefficients have different signs, it suggests the existence of a threshold effect, which implies that the effect of oil price on public expenditure varies with the level of corruption. Hence, it is necessary to evaluate the marginal effects within our sample.

Methodology and Data

Data

This study uses quarterly data covering the 1996-2019 period. The period was chosen due to the availability of the data on control of corruption. The data on the variables were collected from various sources as follows. The data on public expenditure, spending on internal security and debt service, were collected from the Central Bank of Nigeria (CBN) Statistical

Bulletin. The data on oil price was collected from OPEC Annual Statistical Bulletin, inflation data from the World Development Indicators (WDI), and control of corruption from the World Governance Indicators (WGI).

The data are measured as follows. PEX is aggregate public expenditure in billions of US dollars. $OILP$ is the annual average price of crude oil base on OPEC Reference Basket (ORB) measured in US dollars. COR is captured by the control of corruption and it reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption. The index takes a value of -2.5 to 2.5. Higher values indicate that corruption is low, and vice versa. Thus, a positive sign of the coefficient of COR implies that a decrease in corruption has a positive effect on public expenditure, and vice versa. $DEBTS$ is debt servicing expenditure in billions of US dollars and $INTS$ is the total annual spending on internal security in billions of US dollars. $INF$is the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. It is important to state that public expenditure, debt servicing and spending on internal security, which are in local currency (i.e. Naira), were converted into US dollars, and their absolute values were transformed by taking their logarithm. The data are presented in Appendix 1.

Non-linear ARDL-bounds Test to Cointegration

In an attempt to evaluate the asymmetric effect of oil price on public expenditure, and the dependence of oil price and public expenditure nexus on the level of corruption in Nigeria, we employ the novel NARDL co-integration method. This technique which was advanced by Shin, Yu and Greenwood-Nimmo (2014), is an asymmetric expansion of the linear ARDL model (Pesaran, Shin, 1999; Pesaran, Shin, Smith, 2001). Following Shin et al. (2014), a non-linear (asymmetric) cointegrating relationship between oil price ($LogOILP$) and public expenditure ($LogPEX$) is expressed as:

$$\begin{aligned} LogPEX_t = {} & \alpha_1 + \beta^+ LogOILP_t^+ + \beta^- LogOILP_t^- + \alpha_2 COR_t \\ & + \alpha_3 (LogOILP_t * COR_t) + \alpha_4 LogDEBTS_t + \alpha_5 LogINTS_t \\ & + \alpha_6 INF_t + u_t \end{aligned} \quad (5)$$

where β^+ and β^- are the associated long-run parameters and $LogOILP_t$ is a $k \times 1$ vector of regressors decomposed as:

$$LogOILP_t = LogOILP_0 + LogOILP_t^+ + LogOILP_t^- \quad (6)$$

$LogOILP_t^+$ and $LogOILP_t^-$ are partial sum corresponding to positive and negative changes in $LogOILP_t$ which are generated by computing:

$$LogOILP_t^+ = \sum_{i=1}^{t} \Delta LogOILP_i^+ = \sum_{i=1}^{t} \max(\Delta LogOILP_i, 0) \quad (7)$$

$$LogOILP_t^- = \sum_{i=1}^{t} \Delta LogOILP_i^- = \sum_{i=1}^{t} \min(\Delta LogOILP_i, 0) \quad (8)$$

Shin et al. (2014) showed that associating equation (5) with the linear ARDL(p, q) model, a NARDL(p, q) model expressing the asymmetric relationship between oil price and public expenditure can be expressed as follows:

$$\begin{aligned}\Delta LogPEX_t = {} & \alpha_1 + \rho LogPEX_{t-1} + \theta^{+} LogOILP^{+}_{t-1} + \theta^{-} LogOILP^{-}_{t-1} + \alpha_2 COR_t \\ & + \alpha_3 OILP_t * COR_t + \alpha_4 LogDEBTS_t + \alpha_5 LogINTS_t + \alpha_6 INF_t \\ & + \sum_{i=1}^{p-1} \varphi_i \Delta LogPEX_{t-i} \\ & + \sum_{i=0}^{q_1} (\pi_i^{+} \Delta LogOILP^{+}_{t-i} + \pi_i^{-} \Delta LogOILP^{-}_{t-i}) + \sum_{i=0}^{q_2} \delta_i \Delta COR_t \\ & + \sum_{i=0}^{q_3} \delta_i \Delta OILP_t * COR_t + \sum_{i=0}^{q_4} \delta_i \Delta LogDEBTS_t \\ & + \sum_{i=0}^{q_5} \delta_i \Delta LogINTS_t + \sum_{i=0}^{q_6} \delta_i \Delta INF_t + \upsilon_t\end{aligned} \tag{9}$$

where:

$\theta^{+} = -\rho\beta^{+}$ and $\theta^{-} = -\rho\beta^{-}$

The procedure of the NARDL approach involves three basic steps. First is the estimation of the NARDL(p, q) model in equation 9 by the standard OLS. The second is to test the asymmetric (non-linear) cointegrating relationship among the variables, namely – $LogPEX_t$, $LogOILP^{+}_t$, $LogOILP^{-}_t$, COR_t, $LogOILP_t * COR_t$, $LogDEBTS_t$, $LogINTS_t$ and INF_t. In particular, the joint null hypothesis of no co-integration: $\rho = \theta^{+} = \theta^{-} = 0$ in equation 9 is tested by means of the bounds test procedure of Pesaran et al. (2001) and Shin et al. (2014) based on a modified Wald (F-statistic) test. The procedure uses two critical bounds, which are the upper [I(1)] and lower [I(0)] critical bounds. If the computed F-statistic exceeds the upper bound [I(1)], it implies the presence of a long-run equilibrium relationship. But if F-statistic is less than the lower bound [I(0)], the null hypothesis of no co-integration is accepted. Moreover, if the calculated F-statistic lies between the two critical bounds, the inference would be inconclusive (Athanasenas, Katrakilidis, Trachanas, 2014; David, Sakanko, Obilikwu, 2020). Finally, the long-run and the short-run symmetry relationship are tested using the standard Wald test. For long-run asymmetry, the relevant joint null hypothesis to be tested is $-\theta^{+}/\rho = -\theta^{-}/\rho$, while for short-run asymmetry, the joint null hypothesis to be tested is $\sum_{i=0}^{q} \pi_i^{+} = \sum_{i=0}^{q} \pi_i^{-}$.

Results and Discussion

Prior to investigating if the effect of oil price on public expenditure is dependent on the level of corruption in Nigeria, descriptive statistics, correlation analysis and unit root tests for the variables were computed.

Descriptive Statistics and Correlation Analysis

The descriptive statistics and correlation analysis are reported in Table 2. The descriptive statistics demonstrate that the mean public expenditure is US$20.22 billion, and the average value of oil price for the period under study is US$55.30. In addition, the mean control of corruption is -1.14, and the average inflation rate is 12.07 for the same period. More so, the average debt service is US$3.44 billion, while the average government expenditure on internal security is US$1.18 billion.

Table 2

Descriptive Statistics and Correlation Analysis

Descriptive Statistics						
	PEX	**OILP**	**COR**	**DEBTS**	**INTS**	**INF**
Mean	2.02E+10	55.2975	-1.1409	3.44E+09	1.18E+09	12.0648
Std. Dev.	7.98E+09	30.1854	0.1222	1.89E+09	6.34E+08	3.9077
Maximum	3.30E+10	109.4500	-0.8900	8.00E+09	2.30E+09	29.2683
Minimum	6.87E+09	12.2800	-1.4300	3.33E+08	2.46E+08	5.3880
Observations	93	93	72	93	93	93
Correlation Analysis						
	PEX	OILP	COR	INTS	DEBTS	INF
PEX	1.0000					
OILP	0.8118**	1.0000				
COR	0.4958**	0.3045**	1.0000			
INTS	0.9297**	0.7601**	0.4900**	1.0000		
DEBTS	0.5645**	0.2193*	0.1664	0.6037**	1.0000	
INF	-0.3319**	-0.4611	-0.1235	-0.3819	-0.0012	1.0000

* and ** denote statistical significance at 10% and 1% levels, respectively.
Source: Authors' computation.

Moreover, the correlation analysis indicates that public expenditure and oil price have a strong positive and significant association (0.81), while public expenditure and corruption have a moderate and significant positive correlation (0.50). In addition, there is a very strong positive and significant correlation between spending on internal security and public expenditure (0.93), a moderate positive and significant correlation between debt service and public expenditure (0.56), and a weak negative association between inflation and public expenditure (-0.33).

Results of Unit Root Tests

Although the NARDL method does not require conducting a unit root test, it is necessary to perform the test because the presence of I(2) series makes the computed F-statistic invalid (Athanasenas et al., 2014). The conventional Augmented Dickey-Fuller (ADF) test of Dickey and Fuller (1979) and Philips-Perron (PP) test of Phillips and Perron (1988) were conducted to ascertain the unit root status of the series.

The unit root tests results (Table 3) show that the series are a mixture of I(0) and I(1) because some variables are stationary at level, while others turned out stationary after their first

difference has been taken. These findings provide the justification for conducting the bounds test to co-integration.

Table 3

Results of Unit Root Tests

Series	ADF		PP		Decision
	Level	1st Diff.	Level	1st Diff.	
LPEX	-1.6457	-3.1852**	-0.9888	-3.4565**	I(1)
LOILP	-1.9003	-3.3464**	-1.3557	-3.6474**	I(1)
COR	-3.0277**	-	-2.3598	-3.2247**	I(0)
LDEBTS	-1.5027	-3.7355***	-1.3370	-4.6313***	I(1)
LINTS	-1.1412	-3.2747**	-0.7485	-3.5879***	I(1)
INF	-5.0085***	-	-4.8135***	-	I(0)

*Source: Authors' computation. ***and ** denote statistical significance at 1% and 5% levels, respectively.*

Result of NARDL-bounds Test to Cointegration

The NARDL-bounds test to co-integration result (Table 4) illustrates that the calculated F-statistic (3.61) is larger than the upper critical bound value (3.21) at 5% level. This indicates that there is a cointegrating relationship between the variables. Thus, a long-run relationship exists among the variables under consideration.

Table 4

Result of Bounds Test to Cointegration

Dependent Variable			Function				F-statistic	
$LogPEX$			$f(LogPEX/LogOILP^{+}, LogOILP^{-}, LogOILP * COR, LogDEBTS, LogINTS, INF)$				3.6115**	
Critical Values Bounds								
10%		5%		2.5%		1%		
I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	
1.92	2.89	2.17	3.21	2.43	3.51	2.73	3.90	

*Source: Authors' computation. ** denotes statistical significance at 5% level. Log is a logarithm.*

Results of Estimation of the NARDL Model

Having established the presence of a cointegrating (long-run) relationship between the variables, the NARDL model was estimated taking into consideration the optimal lag-length (2,2,2,0,1,1,1,1) as suggested by the Schwarz Information Criterion (SIC). In addition, the long-run and the short-run asymmetry tests (using the Wald restriction test) were computed and the results are reported in Table 5. The result of long-run asymmetry tests indicates that the F-statistic (5.97) is significant at 5% level, while there is no evidence of short-run asymmetry. Thus, there is a long-run asymmetric relationship between negative and positive changes in the price of oil and public expenditure.

Table 5

Results of Estimation of the NARDL Model

Panel A: Long-run Coefficients – Dependent variable is $LogPEX$				
Regressor	Coefficient	Std. Error	t-Statistic	Prob.
Constant	6.2173	1.0849	5.7304***	0.0000
$LogOILP^{+}$	0.3407	0.0931	3.6579***	0.0006
$LogOILP^{-}$	0.3784	0.0492	7.6984***	0.0000
COR	0.3777	0.0935	4.0412***	0.0002
$LogOILP * COR$	-1.0414	0.3398	-3.0645***	0.0035
$LogDEBTS$	0.3401	0.09530	3.5688***	0.0008
$LogINTS$	0.1303	0.0679	1.9170*	0.0611
INF	0.0017	0.0022	0.8012	0.4269
Panel B: Short-run Coefficients – Dependent variable is $\Delta LogPEX$				
Regressor	Coefficient	Std. Error	t-Statistic	Prob.
$\Delta LogPEX_{t-1}$	0.7278	0.0591	12.319***	0.0000
$\Delta LogOILP^{+}$	0.1036	0.0424	2.4437**	0.0182
$\Delta LogOILP^{-}$	0.0707	0.0727	0.9724	0.3357
$\Delta LogOILP^{-}_{t-1}$	-0.3114	0.0589	-5.2809***	0.0000
ΔCOR	0.1889	0.0584	3.2349***	0.0022
ΔCOR_{t-1}	-0.3283	0.0497	-6.6066***	0.0000
$\Delta(LogOILP * COR)$	-0.3284	0.1236	-2.6575**	0.0106
$\Delta LogDEBTS$	0.2802	0.0466	6.0177***	0.0000
$\Delta LogINF$	-0.0027	0.0008	-3.2822***	0.0019
u_{t-1}	-0.2115	0.0344	-6.1489***	0.0000
W_{LR}	5.9679**			
W_{SR}	1.1312			
R^2	0.92			

*, ** and *** *denote significance at 10% and 1%, respectively.* Δ *is the first difference operator. Superscripts "+" and "−" denote positive and negative partial sums, respectively.* u_{t-1} *is the coefficient of error term lagged by one period, representing the speed of adjustment back to equilibrium in the long run following a deviation from the equilibrium in the short-term.* W_{LR} *refers to the Wald test of long-run symmetry defined by* $-\hat{\theta}^{+}/\hat{\rho} = -\hat{\theta}^{-}/\hat{\rho}$. W_{SR} *is the short-run symmetry defined by* $\sum_{i=0}^{q}\pi_i^{+} = \sum_{i=0}^{q}\pi_i^{-}$. R^2 *is the coefficient of determination.*

Source: Authors' computation.

The long-run results (Panel A) indicate that both positive and negative shocks to oil price have a significant positive impact on public expenditure in the long run. A positive shock to oil price causes public expenditure to rise by a 0.34%, while a negative shock leads to a 0.38% increase in public expenditure at 1% level in the long run. In addition, the control of corruption has a significant positive effect on public expenditure in the long run. An increase in the control of corruption (reducing corruption) by 1 point leads to an increase in public expenditure by a 0.38% at 1% level in the long run.

Furthermore, the results demonstrate that the impact of oil price on public expenditure is dependent on the level of corruption in the long run and the relationship is significant. At low levels of corruption (an improvement in the control of corruption), raising oil price by 1% causes public expenditure to decline by approximately 1.04% at 1% level in the long run. Moreover, debt servicing has a significant positive impact on public expenditure in the long run. A 1% increase in debt service leads to a 0.34% increase in public expenditure at 1% level in the long run. In the same vein, spending on internal security has a positive and

significant effect on public expenditure in the long run. A 1% increase in expenditure on internal security leads to an increase in public expenditure by a 0.13% at 10% level in the long run.

The short-run results (Panel B) illustrate that a positive shock to oil price has a significant positive effect on public expenditure in the short run. A positive shock to oil price leads to a 0.10% increase in public expenditure at 5% level in the short run. Also, the control of corruption has a significant and positive impact on public expenditure in the short run. An increase in the control of corruption (reducing corruption) by 1 point causes public expenditure to increase by a 0.19% at 1% level in the short run. In addition, the impact of oil price on public expenditure is dependent on the level of corruption in the short run. At a lower level of corruption, raising oil price by 1% reduces public expenditure by 0.33% at 5% level in the short run. Furthermore, debt service has a significant and positive effect on public expenditure in the short run. A 1% increase in debt service raises public expenditure by a 0.28% at 1% level in the short run. On the other hand, inflation has a significant and negative effect on public expenditure in the short run. An increase in inflation by 1% reduces public expenditure by a 0.003% at 1% level in the short run. The coefficient of the error correction term lagged by one period is significant and correctly signed, and it illustrates that 21.15% of the deviation is corrected in the fourth quarter.

Results of Diagnostic Tests

The diagnostic test results are reported in Table 6. The result of the serial correlation test indicates that the test statistic is 2.97 with a probability value of 0.23. In addition, the heteroscedasticity test result illustrates that the test statistic is 11.79 with a probability of 0.81. Furthermore, the normality test result shows that the Jarque-Bera statistic is 3.62 and its probability is 0.16. More so, the Ramsey RESET F-statistic is 0.02 with a probability value of 0.88. These outcomes reveal that the estimated relationship is free from problems of serial correlation and heteroscedasticity, and it passes the non-normality and model misspecification tests.

Table 6

NARDL Model Diagnostic Tests

LM Test Statistic	Results
Serial Correlation: χ^2	2.9656 [0.2270]
Heteroscedasticity: χ^2	11.7863[0.8129]
Normality: Jarque-Bera	3.6232 [0.1634]
Functional Form: Ramsey RESET F-stat.	0.0213 [0.8846]

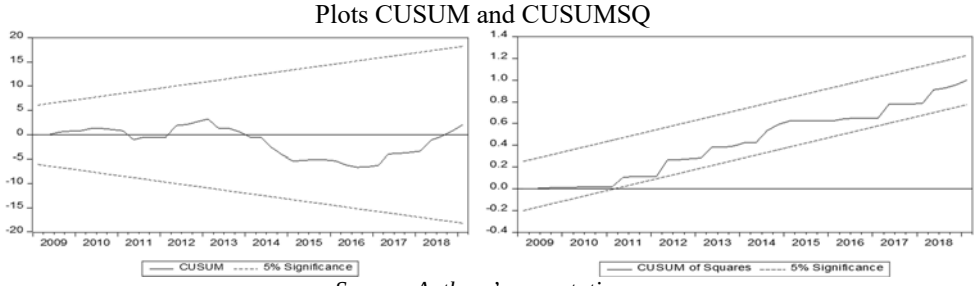
Source: Authors' computation. Probability values are in brackets.

Results of Stability Tests

The stability test results (Figure 4) indicate that the plots of the cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMSQ) lie within the lower and upper bounds. These outcomes illustrate that the estimated model and the parameters are stable over the long term.

Figure 4

Plots CUSUM and CUSUMSQ



Source: Authors' computation.

Marginal Effects of Oil Price on Public Expenditure at Different Level of Corruption

We estimated the marginal impact of oil price at different levels of corruption, and reported the results in Table 7. The marginal effect of a positive shock to oil price on public expenditure at the mean control of corruption (i.e. -1.14) is 1.57. The marginal effect is 1.87 at the maximum value of control of corruption (i.e. -0.89) and 1.31 at the minimum value of control of corruption (i.e. -1.43). In addition, the marginal impact of a negative shock to oil price on public expenditure when the mean control of corruption is -1.14 is approximately 1.53. The marginal impact of a negative shock to oil price on public expenditure at the maximum control of corruption is 1.83, while the marginal effect of oil price on public expenditure is 1.27 when the control of corruption is at minimum (i.e. -1.43).

Table 7

Marginal Effects of Oil Price on Public Expenditure at Different Levels of Corruption

Level of Control of Corruption	Marginal effect of $LogOILP^{+}$	Marginal effect of $LogOILP^{-}$
Mean	1.5667	1.5289
Minimum (high level of corruption)	1.3053	1.2676
Maximum (low level of corruption)	1.8677	1.8299

Source: Authors' computation. Note: Marginal effects of (positive and negative) changes in oil price on public expenditure are calculated based on equation 4.

These empirical findings have some implications. The positive relationship between oil price and public expenditure is consistent with the findings of previous studies on Nigeria (Adedokun, 2018; Aregbeyen, Fasanya, 2017; Jibir, Aluthge, 2019). Therefore, rising oil prices raise the capacity of Nigeria and its government to earn higher revenue or income, which can be expended to provide public goods and services, leading to higher public expenditure.

In addition, the positive impact of reducing corruption on public expenditure lends support to the works of Nelson and Yebimodei (2018) and Onogwu (2018) on Nigeria. These authors found that rising corruption reduces public expenditure in Nigeria, and vice versa. This empirical finding suggests that if public sector corruption is high, government officials can

divert funds meant for the provision of socio-economic infrastructure (or public utilities) for personal use, leading to lower public expenditure.

Also, the positive sign of the coefficient of debt service lends support to the outcomes of past studies (Aregbeyen, Akpan, 2013; Mahdavi, 2004; Ukwueze, 2015). Thus, the higher the amount required to service Nigeria's huge debt, the higher the public expenditure.

In the same vein, the positive impact of spending on internal security on public expenditure illustrates that higher expenditure to curb rising insecurity such as banditry, kidnapping and insurgency, leads to an increase in public expenditure.

The negative effect of inflation on public expenditure in the short-run is consistent with the claim that higher inflation reduces the real value of debt stock (Cooray, Schneider, 2013), and consequently a decline in the real value of public expenditure.

Furthermore, the negative relationship between public expenditure and oil price-corruption interaction demonstrates that the effect of oil price on public expenditure varies at different levels of corruption. The impact of oil price on public expenditure is higher at a lower level of corruption (i.e. when the control of corruption is at maximum), while the effect of oil price on public spending is lower at a higher level of corruption (i.e. when the control of corruption is at minimum).

Conclusion

This study uses the NARDL technique to explore whether the effect of oil price on public expenditure depends on the level of corruption in Nigeria using quarterly data from 1996 to 2019. The bounds test to co-integration result demonstrates that there is a long-run relationship among the variables. We found evidence of the presence of asymmetry in the relationship as both negative and positive shocks to oil price have a significant positive impact on public expenditure in the long run. Also, the oil price and public expenditure relationship is dependent on the level of corruption. In addition, the marginal effect of oil price on public expenditure varies at different levels of corruption. In particular, at lesser levels of corruption, increasing oil price leads to higher public expenditure, and vice versa. Other significant drivers of public expenditure in the long run include spending on internal security and debt service. Based on these outcomes, we proffer some recommendations.

First, the government is advised to promote and sustain oil production since proceeds from oil exports account for the largest percentage of government earnings. To this end, efforts should be made to ensure that there is stability in the oil-rich Niger-Delta region, where most of the oil exploration is carried out. Second, there is a need for government to sustain the ongoing war against corruption to ensure judicious use and better management of proceeds from oil exports. Third, whereas we cannot advise the government to reduce spending on internal security in the face of rising banditry, kidnapping and insurgency, taking steps to ensure security can release funds to other critical sectors of the economy. Fourth, although inflation appears to have a short-run negative effect on public expenditure, it is important that the government (through the monetary authority) devises the means to check the excessive increase in inflation. Finally, the rising debt burden has become a serious problem as huge

funds are devoted to servicing Nigeria's debt on a yearly basis. To reverse this trend, efforts should be geared towards raising the government's revenue or earnings.

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Appendix 1

Data Used

YR	LogPEX	LogOILP	COR	LogOILP*COR	LogINTS	LogDEBTS	INF
1996Q1	10.18774	1.307303	-1.19	-1.55569	8.707472	9.384497	29.26829
1996Q2	10.21368	1.298299	-	-	8.706526	9.412316	24.08369
1996Q3	10.23962	1.289294	-	-	8.70558	9.440135	18.89908
1996Q4	10.26556	1.280289	-	-	8.704633	9.467955	13.71448
1997Q1	10.29149	1.271284	-	-	8.703687	9.495774	8.529874
1997Q2	10.30549	1.22578	-	-	8.71236	9.489001	8.8965
1997Q3	10.31948	1.180276	-	-	8.721032	9.482227	9.263126
1997Q4	10.33347	1.134773	-	-	8.729705	9.475454	9.629752
1998Q1	10.34746	1.089269	-1.16	-1.26355	8.738377	9.468681	9.996378
1998Q2	10.263	1.127556	-	-	8.708848	9.232039	9.151877
1998Q3	10.17854	1.165843	-	-	8.679318	8.995397	8.307376
1998Q4	10.09408	1.20413	-	-	8.649788	8.758755	7.462875
1999Q1	10.00962	1.242417	-	-	8.620258	8.522113	6.618373
1999Q2	9.966389	1.292024	-	-	8.563086	8.668681	6.697103
1999Q3	9.92316	1.341632	-	-	8.505914	8.815248	6.775833
1999Q4	9.879931	1.391239	-	-	8.448742	8.961815	6.854562
2000Q1	9.836702	1.440846	-1.22	-1.75783	8.391571	9.108383	6.933292
2000Q2	9.867213	1.421646	-	-	8.428785	9.116911	9.918381
2000Q3	9.897725	1.402445	-	-	8.465999	9.12544	12.90347
2000Q4	9.928236	1.383245	-	-	8.503213	9.133969	15.88856
2001Q1	9.958748	1.364044	-	-	8.540427	9.142498	18.87365
2001Q2	9.950347	1.369716	-	-	8.584892	9.13979	17.37438
2001Q3	9.941947	1.375387	-	-	8.629357	9.137082	15.87511
2001Q4	9.933546	1.381059	-	-	8.673822	9.134374	14.37585
2002Q1	9.925145	1.386731	-1.43	-1.98302	8.718286	9.131666	12.87658
2002Q2	9.938034	1.402213	-1.4125	-1.98063	8.7195	9.210931	13.16538
2002Q3	9.950922	1.417695	-1.395	-1.97769	8.720713	9.290197	13.45418
2002Q4	9.96381	1.433178	-1.3775	-1.9742	8.721926	9.369463	13.74298
2003Q1	9.976698	1.44866	-1.36	-1.97018	8.723139	9.448728	14.03178
2003Q2	9.989698	1.475706	-1.355	-1.99958	8.758568	9.450834	14.27335
2003Q3	10.0027	1.502752	-1.35	-2.02872	8.793998	9.45294	14.51491
2003Q4	10.0157	1.529799	-1.345	-2.05758	8.829427	9.455046	14.75647
2004Q1	10.0287	1.556845	-1.34	-2.08617	8.864856	9.457152	14.99803
2004Q2	10.0564	1.593757	-1.295	-2.06392	8.846765	9.461464	15.7144
2004Q3	10.08411	1.630669	-1.25	-2.03834	8.828674	9.465775	16.43076
2004Q4	10.11181	1.667582	-1.205	-2.00944	8.810583	9.470087	17.14713
2005Q1	10.13951	1.704494	-1.16	-1.97721	8.792492	9.474398	17.86349
2005Q2	10.14912	1.724845	-1.15	-1.98357	8.834945	9.427637	15.45393
2005Q3	10.15873	1.745196	-1.14	-1.98952	8.877397	9.380875	13.04436
2005Q4	10.16833	1.765548	-1.13	-1.99507	8.91985	9.334114	10.63479
2006Q1	10.17794	1.785899	-1.12	-2.00021	8.962302	9.287352	8.225222
2006Q2	10.20584	1.799262	-1.1025	-1.98369	9.011368	9.273031	7.515918
2006Q3	10.23373	1.812626	-1.085	-1.9667	9.060435	9.25871	6.806615
2006Q4	10.26163	1.825989	-1.0675	-1.94924	9.109501	9.244389	6.097311
2007Q1	10.28953	1.839352	-1.05	-1.93132	9.158567	9.230068	5.388008
2007Q2	10.32632	1.873315	-1.01	-1.89205	9.173997	9.299348	6.936275

YR	LogPEX	LogOILP	COR	LogOILP*COR	LogINTS	LogDEBTS	INF
2007Q3	10.36311	1.907277	-0.97	-1.85006	9.189427	9.368629	8.484542
2007Q4	10.3999	1.94124	-0.93	-1.80535	9.204856	9.437909	10.03281
2008Q1	10.43669	1.975202	-0.89	-1.75793	9.220286	9.507189	11.58108
2008Q2	10.41886	1.927841	-0.925	-1.78325	9.208422	9.437442	11.82455
2008Q3	10.40102	1.880479	-0.96	-1.80526	9.196558	9.367695	12.06802
2008Q4	10.38319	1.833118	-0.995	-1.82395	9.184694	9.297949	12.31149
2009Q1	10.36536	1.785757	-1.03	-1.83933	9.172831	9.228202	12.55496
2009Q2	10.38545	1.811573	-1.035	-1.87498	9.173042	9.281597	12.84627
2009Q3	10.40555	1.837389	-1.04	-1.91088	9.173253	9.334993	13.13758
2009Q4	10.42564	1.863205	-1.045	-1.94705	9.173464	9.388389	13.42889
2010Q1	10.44573	1.889021	-1.05	-1.98347	9.173676	9.441785	13.7202
2010Q2	10.45582	1.924578	-1.08	-2.07854	9.195264	9.465046	13.00016
2010Q3	10.46591	1.960134	-1.11	-2.17575	9.216852	9.488308	12.28011
2010Q4	10.47599	1.99569	-1.14	-2.27509	9.23844	9.511569	11.56007
2011Q1	10.48608	2.031247	-1.17	-2.37656	9.260028	9.534831	10.84003
2011Q2	10.48106	2.033239	-1.17	-2.37889	9.285528	9.559819	11.18447
2011Q3	10.47603	2.035231	-1.17	-2.38122	9.311028	9.584807	11.5289
2011Q4	10.47101	2.037224	-1.17	-2.38355	9.336529	9.609795	11.87334
2012Q1	10.46599	2.039216	-1.17	-2.38588	9.362029	9.634783	12.21778
2012Q2	10.47899	2.035605	-1.1825	-2.4071	9.338953	9.656418	11.28229
2012Q3	10.492	2.031994	-1.195	-2.42823	9.315876	9.678053	10.3468
2012Q4	10.50501	2.028384	-1.2075	-2.44927	9.2928	9.699689	9.411316
2013Q1	10.51802	2.024773	-1.22	-2.47022	9.269723	9.721324	8.475827
2013Q2	10.50386	2.014475	-1.2325	-2.48284	9.261346	9.734428	8.372492
2013Q3	10.4897	2.004177	-1.245	-2.4952	9.252968	9.747532	8.269157
2013Q4	10.47555	1.993879	-1.2575	-2.5073	9.244591	9.760635	8.165821
2014Q1	10.46139	1.983581	-1.27	-2.51915	9.236214	9.773739	8.062486
2014Q2	10.449	1.911315	-1.2225	-2.33658	9.258863	9.765124	8.299211
2014Q3	10.4366	1.839049	-1.175	-2.16088	9.281512	9.756508	8.535937
2014Q4	10.42421	1.766783	-1.1275	-1.99205	9.304161	9.747893	8.772662
2015Q1	10.41182	1.694517	-1.08	-1.83008	9.326811	9.739278	9.009387
2015Q2	10.39982	1.673447	-1.0675	-1.7864	9.299323	9.741997	10.67588
2015Q3	10.38782	1.652376	-1.055	-1.74326	9.271835	9.744716	12.34236
2015Q4	10.37582	1.631305	-1.0425	-1.70064	9.244348	9.747435	14.00885
2016Q1	10.36383	1.610234	-1.03	-1.65854	9.21686	9.750154	15.67534
2016Q2	10.35402	1.637571	-1.0425	-1.70717	9.191247	9.756509	15.88739
2016Q3	10.34421	1.664907	-1.055	-1.75648	9.165633	9.762865	16.09944
2016Q4	10.3344	1.692243	-1.0675	-1.80647	9.14002	9.76922	16.31149
2017Q1	10.32459	1.71958	-1.08	-1.85715	9.114406	9.775576	16.52354
2017Q2	10.3452	1.750618	-1.0725	-1.87754	9.136817	9.793905	15.41634
2017Q3	10.36581	1.781655	-1.065	-1.89746	9.159229	9.812235	14.30914
2017Q4	10.38641	1.812693	-1.0575	-1.91692	9.18164	9.830565	13.20193
2018Q1	10.40702	1.843731	-1.05	-1.93592	9.204052	9.848895	12.09473
2018Q2	10.43037	1.834411	-1.06	-1.94448	9.237579	9.862386	11.92025
2018Q3	10.45372	1.825091	-1.07	-1.95285	9.271107	9.875877	11.74576
2018Q4	10.47706	1.815771	-1.08	-1.96103	9.304635	9.889369	11.57128
2019Q1	10.50041	1.806451	-1.09	-1.96903	9.338162	9.90286	11.39679

ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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THE ROLE OF GLOBAL DIGITALISATION IN THE STRATEGIC DEVELOPMENT OF THE ENTERPRISE[4]

The article summarises the arguments and counter-arguments in the scientific debate on the impact of global digitisation on the economy, in terms of potential changes in the activities and further development of enterprises, as well as on the labour market as a whole. The main purpose of the study is to define the role of global digitalisation in the strategic development of the enterprise. The basic logic of this study is based on the assertion that digitisation is a boost in the development of an enterprise and the economy as a whole, and information and knowledge are strategic resources that increase their adaptability to the variability of environmental factors. Methods of analysis and synthesis, deduction and induction, and the search for cause-effect relationships were the methodological tools of research. The research period was the period of the COVID-19 pandemic, which has spanned the world since early 2020, as it has dramatically accelerated the development of a large group of ICT services and online services. The article presents the results of empirical analysis of the main trends in the labour market during the pandemic and their relation to the processes of digitisation and strategic development of enterprises.
Keywords: digitalisation; personnel competencies; knowledge development; personnel management; digital economy; strategic development
JEL: F63; M54; O33

1. Introduction

The COVID-19 pandemic, which has swept the world since the beginning of 2020, has resulted in the rapid acceleration of the development of a large group of ICT and online services. Lockdown and, in fact, forced self-isolation of the population have contributed to

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the explosive increase in demand for online services and distance education; remote employment and development of technological processes of substitution of all types of labour (from manual to intellectual). Quarantine has brought technology directly to the forefront of consumption, supply, interaction, delivery and has actually become a major factor in providing vital needs.

The pandemic has strengthened the social function of digital technologies and services. Only due to digital technologies, a massive transition to a remote format of work has become possible during the most difficult period of the pandemic. All over the world, the philosophy of office work is changing, there is a transition to permanent and conditionally permanent remote work. For example, Transport Canada plans to move to telecommuting as the main employment model for its employees. In the near future, most of the department's 6,000 staff will continue to work remotely. In China, large-scale use of digital work applications from WeChat, Tencent and Ding began in late January 2020, when isolation measures began to take effect. In Switzerland, COVID-19 Remote Work and Study Resources provide free resources for remote work and distance learning. Video conferencing, remote workplaces and new social platforms are launching remote work almost immediately, and this trend is likely to continue after the cancelling of quarantine. Technology can play a crucial role in creating new sources of growth, increasing productivity and helping employees and businesses transfer and adapt to the new world. It is important to take advantage of technology and develop new skills and knowledge, without which further work will be impossible.

It is therefore hypothesised that digitisation is an impulse in the development of an enterprise and the economy as a whole, and that information and knowledge are strategic resources that can enhance their adaptability to environmental variability. This assumption underlies this work, the main objective of which is to define the role of global digitisation in the strategic development of the enterprise.

In order to confirm the hypothesis formulated, the paper provided a structured overview of existing theoretical and empirical studies, which are the focus of this work. In particular, it examines the work of scholars who are advocates of the information society theory as the basis of the theory of socio-economic digitisation, as well as analytical reports by international organisations and consulting companies on major labour market trends during the COVID-19 pandemic. This analytical period was chosen on the basis that it was within its framework that the accelerated development of a large group of ICT services and online services took place.

2. Methodology and Research Methods

Active changes in the economy in general and in the labour market in particular in the context of the COVID-19 pandemic have become the focus of attention of many international organisations and institutions: International Labor Organization (ILO, 2020), World Economic Forum and regional survey partners (WEF, 2020); and leading consulting companies: Deloitte Touche Tohmatsu Limited (Deloitte, 2020), McKinsey & Company (McKinsey, 2020), Gartner (2020). Their activity is aimed at identifying key trends,

analysing the main causal relationships of global changes in the labor market and economic interaction in general. However, such studies are large-scale. To overcome the crisis, it is advisable for enterprises to identify basic conditions for further adaptation both enterprise itself to new market conditions and of the personnel as a key factor in its strategic development. The article uses the version of the structured literature survey, which provides an answer to this question through a careful elaboration of existing theoretical and analytical studies. Also, this paper used general scientific research methods, such as analysis and synthesis, deduction and induction, the search for cause and effect relationships.

3. Literature Review

Digitisation dates back to a long time ago, when accounts and figures were opened. However, this process took place in the second half of the twentieth century. The changes brought about by digitisation began with technological innovations, the introduction of hardware and software, which led to an intensification of production, we extend not only the quantity but also the quality of the goods produced, changing production technologies, including the production of new digital products, which eventually began to change the nature of work.

There is no single theory of digitisation, but it is a private matter that has emerged. It can be said that, to a greater extent, digitisation has been developed in the technical and natural sciences. So, enough Theories of digital television, digital communication, digital sound, digital automata, digital photography, digital systems, etc. (Tocci, Widmer, 2000). However, the principles of these theories of technical digitisation can be transferred to socio-economic theories.

The theories of the information society can be considered as the origins of the theory of socio-economic digitisation. One of the first works in this direction is considered the work of Y. Hayashi (1969), where the definition of «information society» is justified. The work of I. Masuda (Masuda, 1981), whose main theoretical underpinnings focus on the study of changes in human values under the influence of information and information technologies, is a significant contribution to the development of this theoretical field. The author argued that time, not goods, would become the centre of consumption in society. Computerisation will make information accessible to data sources that know, as well as a high level of automation. The information content of the product will be of primary value, and the focus will therefore be on the production of information products and resources rather than on the production of material goods.

The development presented about the information society has given rise to several theories. First, theoretical developments of «school of regulation», which originated from A. Lipietz, M. Aglietta, R. Boyer, D. Harvey, S. Lash, J. Urry. These authors aim to examine the relationship between the accumulation regime and the mode of regulation. These theories argue that there has been a shift from the Fordyste to the post-Fordist mode of saving from mass production to flexible specialisation. Theorists argue that NOT Information generated this transition, but it has become fundamental to the maintenance and adaptability of business. At the same time, information flows provide financial services and are a condition

for the globalisation of the economy, the information plays a key role in management, the fate of information is growing rapidly.

One of the key works in information society theories was the work of M. Castells "The Rise of the Network Society. Information Age: Economy, Society and Culture" (Castells, 1996), in which presented a classical analysis of the role of information in modern society. Castells shows how information is embedded in change and how it accelerates THIS change. The theory of information capitalism justifies the transition to the information age, in which networks linking individuals, groups, institutions and States play a key role. Theoretical work has focused on the solution of the main problem – the widening gap between increasing globalisation and socio-economic divisions.

Quite clearly, the authors of information society theory argued that the information sector was a priority in the structure of the economy, argued that information, rather than labour and capital, became the key factor of production. Moreover, knowledge and information are ascribed to the role of the main agent of change and transformation of the modern market system into an entirely new type of human society, i.e. the information society, the key element of which will be the production and use of information, which will surpass material products, energy and services in importance and weight. The main role in the social economy will be not the right of ownership, but the right of use (Bell, 1973).

The argument for converting information and knowledge into a "strategic resource" of the society is the research of American scientists J. Naisbitt (1982) and M. Porat (1977). The first showed significant changes in the structure of employment in the US economy, where the information sector grew throughout the second half of the twentieth century. The second showed that a significant increase in US gross national product is in the information sector. These indicators showed changes in the structure of employment and showed trends in social change.

In general, the current information society paradigm can be presented as a global production process and the widespread use of information as a public resource based on the massive introduction of collection methods and tools, Processing, transmitting and storing information and bringing about profound changes in the progressive nature of social, economic, political and socio-cultural structures in society, with a significant impact on the standard of living and quality of life of the population.

Consequently, the basic characteristics of a digital society can be considered: the production of knowledge and information, primarily as an economic product; the changing social structure of a society where information elites and masses emerge (Toffler, 1990); increasing the proportion of people working with information, knowledge and information services; mass use of robots, computer systems, which will lead to radical changes in education, science.

Thus, the analysis of information society theories makes it possible to view digitisation as a boost in the development of enterprises and the economy as a whole, and information and knowledge as a strategic resource, which improves their adaptability to environmental variability, as will be discussed below.

4. Findings

Doing business is getting more globalised and intercontinental. The McKinsey and Gartner surveys conducted shortly before the pandemic, as well as the Intel/EMC study, showed that only a tenth of the major companies in various industries have fully adopted the digital business model, and it is mainly companies in the trade sector. Others see too many organisational, technical, human resources and, most importantly, financial obstacles to the "digital transformation" of their business. Moreover, research shows that doubt and skepticism about digital technologies are growing among chief executive officers (CEOs) around the world, and such «leading» digital companies like Uber, Google, AirBnB, that use the platform business organisation principle are no longer seen as role models and are not valued by investors as highly as they were in 2017-2018 (Sondergaard, 2019).

However, there is a downside to such rapid digitalisation. According to the report "The Future of Jobs 2020" (WEF, 2020), by 2025, 43% of employers intend to reduce the number of jobs, 41% of them plan to expand the use of contractors to perform specialised work, and only 34% will expand the staff. The introduction of new technologies will lead to changes in business tasks, jobs and required professional skills, while 40% of employees will need retraining. The introduction of new technologies and changes in the division of labour between people and machines will result in 85 million jobs being eliminated from the labour market, and they will be replaced by 97 million new ones. According to employers, they will be more adapted to new technological realities in terms of interaction between people, machines and algorithms. Although the number of new jobs created is estimated to exceed the number of jobs cut, the rate of growth will slow.

The International Labor Organization (ILO, 2020) predicts that approximately 195 million workers will be displaced in the labour market by the end of 2020, as the transformation of jobs towards automation accelerates. Although many workers have become unemployed, hiring levels also remained low from mid-March to the end of July, indicating a reluctance of businesses to invest in new staff. This means that workers displaced in the labour market have fewer opportunities to return to work as businesses reduce their staff.

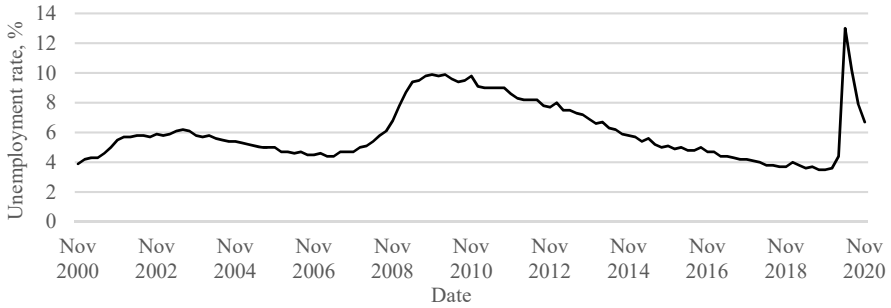
A similar conclusion was reached by experts at LinkedIn Economic Graph (LinkedIn, 2020), which can track changes in hiring rates in the world's leading countries – Australia, China, France, Italy, Singapore, the United Kingdom and the United States. According to them, there has been a steady decline in hiring in the areas of tourism, consumer goods and manufacturing. Despite the sufficient stability of the IT market, where reductions are much slower, the rate of hiring is much slower than in previous years. The situation is similar in the financial industry. It is obvious that the healthcare industry and pharmacy have remained close to comparable hiring rates to the same period last year.

Such trends can already be seen in the employment rate of the United States (Figure 1). For example, employment rates in the United States show that the unemployment rate rose from 3.5% (in February 2020) to a peak of 14.7% (in April 2020). In comparison, during the global financial crisis in 2009, the US unemployment rate rose from 4.7% (in December 2007) to almost 10% (in June 2009) (US Bureau of labour statistics, 2020). Now the unemployment rate in the United States has decreased and is about 10%. The COVID-19 pandemic has

destroyed more jobs in two months than the Great Recession did in two years. As the United States lifted restrictions on the physical movement of people, some workers have been recalled to work, while others have moved into the unemployed category.

Figure 1

Unemployment rate in the United States for the period 1967-2020



Source: developed by authors on the basis of US Bureau of labour statistics (2020).

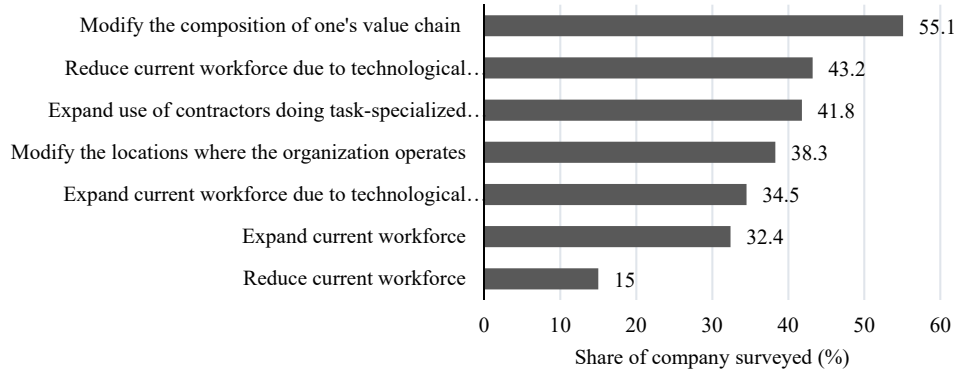
According to the report (WEF, 2020), at the end of February 2020, the number of employees in China fell to -47% year-on-year. In France and Italy, the decline was more pronounced and reached -70% and -64.5%, accordingly, by mid-April 2020. Both the United Kingdom and Australia approached these low rates, where the reduction reached -40%. Since then, hiring has gradually recovered, and most of the seven key economies for which these rates were analysed tend to change by 0% year-on-year. By July 1, 2020, China, France, and the United States observed the largest recovery in comparative hiring rates of -6% or -7%. At the end of September 2020, the countries with the highest hiring recovery were China (22%), Brazil (13%), Singapore (8%), and France (5%). It seems that in these economies, hiring currently compensates for months when no new staff was recruited, indicating some stabilisation of the labour market.

Data from the Forum's Future of Jobs Survey (WEF, 2020) shows that employers are ready to accelerate automation processes and increase the workload, increasing the possibility of resumption of employment (Figure 2). Among CEOs surveyed, 55% seek to change the composition of their value chain, 43% look to introduce further automation and thus reduce the current workforce, 34% seek to expand their workforce as a result of deeper technology integration, and 41% seek to expand the use of contractors to perform specialised work.

New work paradigms, like telecommuting and remote working, have changed the traditional definition of «work». Until recently, in studies of the labour market, employment and social and labour sphere in general, non-standard forms of employment, including remote work, personnel outsourcing, part-time work, other flexible forms of employment, were considered mostly as an anomaly, as atypical, etc. (Kolot, Herasymenko, 2020). Before the pandemic, a relatively small part of the world's population worked remotely on a full-time basis. The ILO (ILO, 2020) estimates that 8% of the world's labour force (approximately 260 million workers) worked permanently from home before the COVID-19 pandemic. Only 19% of them were employees (in the EU – only 3%), while the part of self-employed working from home has consistently increased, reaching 19% in 2019.

Figure 2

Planned business adaptation in response to COVID-19



Source: World Economic Forum, 2020.

According to the Global State of Remote Work study (Owl Labs, 2018), 56% of companies worldwide in 2018 provided employees the opportunity to perform work remotely, at least in some form. However, it should be noted that before the pandemic, most of the self-employed people worked at home.

Based on data from the Payoneer International Payment Platform (Payoneer, 2020), Europe and the United States are the most demanded markets for remote work. European clients account for 51% of freelancers, but the vast majority of freelancers are willing to work in the North American market. In 2015 it accounted for only 37%, and now it employs 68% of US freelancers.

However, the pandemic changed the situation as expected. Thus, in the midst of the pandemic – in March-April – 62% of all employees in the United States worked from home (Gallup, 2020). In the EU, these figures were slightly lower, but the difference with the situation before the pandemic is significant. The information technology and insurance industries have the greatest opportunity to work remotely; 74% of employees in these industries report access to remote work. But there are also industries such as finance, law and business consulting that can theoretically do more remote work (Zhao, 2020).

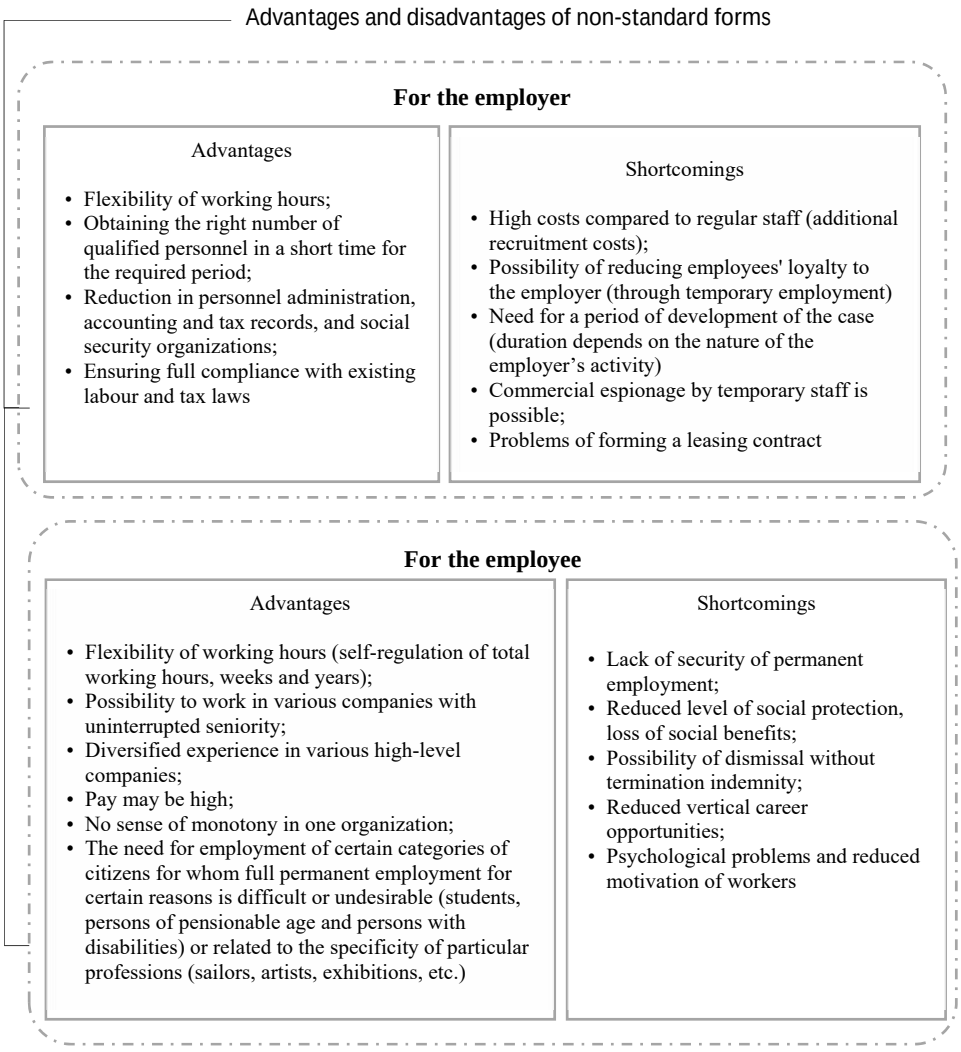
Non-traditional forms of employment, such as telework, have advantages and disadvantages (Figure 3).

In the process of companies' search for ways to adapt their work before the crisis (in particular in the remote form of work), it became clear that in many, although not all, countries around the world, technology was not the biggest challenge. Where the problem is the most urgent, the crisis has pointed to the digital inequality in countries, regions, rural communities, and cities with a lack of access to modern digital technologies, in particular the Internet. In countries with access to modern digital technologies, the greatest difficulty has been to build processes of human interaction with technology. In particular, the formation of

new principles and methods of managing the processes of adaptation, behavior and work in interaction with available technologies, the pleasure of purely human needs, such as the desire for meaningful work, interaction and well-being, maximising the potential of employees through the formation of new skills and competences, protection of ethical values.

Figure 3

Advantages and disadvantages of non-standard forms of work



Source: Research result, 2020.

Employers felt a lack of skills among employees and the inability of managers to respond quickly to changing conditions. Employees in various industries had to adapt to rapidly

changing conditions, and the company must learn how to adapt these employees to new roles and activities. This dynamic applies not only to remote work, but also to the role of automation and artificial intelligence. Remote work helps employees to learn new skills, wherever they are. COVID-19 has accelerated the adoption of fully digitised approaches to reproduce the best results of individual learning through live video and social sharing. This transformation allows you to scale your training in a more cost-effective way and provides greater personalisation and efficiency. Thus, companies faced the need to create new knowledge, competences, skills, and fast reskilling of employees.

It is incumbent upon organisations to support their workforce in transitioning to the new learning paradigms. Not doing so can prove to be a huge competitive disadvantage.

The simplest example of the urgent need to acquire new knowledge, competences, and skills for employees around the world can be considered the active introduction of Zoom technology in all areas of the business. Thus, in the first two months of 2020, Zoom attracted more new users than for the entire 2019. In March, 300 thousand new users joined the service every day, and that is only in the United States. Zoom has 14 million active monthly users now. And more than 100,000 corporate customers, including Samsung, Uber, Slack and Walmart (Zoom, 2020). Mastering such simple (compared to analogue Skype, Google Hangouts, Facebook Messenger, Apple FaceTime, etc.) and affordable technology has become a challenge for a large part of employees, especially the elderly. However, modern realities left no choice – either the employee had to master it rapidly on his or her own in order to work remotely, or change the status to «temporarily unemployed».

The crisis caused by the COVID-19 pandemic has created an urgent need to rethink approaches to personnel management. While companies have doubled their investment in technology over the past decade, most of them have not invested enough in developing strategies to adapt employees to new work processes. Only 17% of respondents, who participated in the Deloitte international study «2020 Human Capital Trends» (Deloitte, 2020), make significant investments in staff retraining to support the strategy of implementing artificial intelligence technologies; and only 12% of respondents use such technologies to replace employees with innovative technologies. On average, 66% of surveyed companies invested in professional development during the year, while almost 17% of them focused on the fact that they were not sure about the possibility of returning such investments. About 20% of companies answered that they use state support for the implementation of programs to develop the competences of their employees. Despite such statistics, today, the lion's share of business leaders understands that retraining of employees is cost-effective and gives a high return not only for businesses but also for society. However, despite the opinion of employers about the need for retraining or advanced training of almost 70% of all employees by 2025, only 42% of employees are ready to use such opportunities.

McKinsey's research indicates that by 2030, the skills needed in the workforce will be radically different from those valued today. Such a transformation must be met with appropriate training and learning strategies. And that, in turn, means organisations should care even more about the digital transformation of learning. However, the results of the 23rd Annual Global CEO Survey Navigating the rising tide of uncertainty (PWS, 2020) indicate that 77% of the 22,000 employees of the companies in all would like to learn new skills or

retrain, but only 33% believe that they were given the opportunity to develop digital skills beyond their normal duties.

Considering all the statistics cited, it can be concluded that the desire to combine the benefits of the individual and the needs of the enterprise to create behaviour, a commitment to cooperation, the development of competences remains an important item for research into prospects for the strategic development of the enterprise. Under such conditions, the use of competence-based and institutional approaches in the management of enterprises in general, and personnel, as well as the introduction of new trends in corporate training in personnel management processes, remains relevant. Thus, the competency approach is based on the results of the analysis of human working skills without prior conclusions about what characteristics are necessary for the proper performance of this work. The competence method emphasises the validity of the criteria: "the most important thing is what really leads to the best performance of work, not the factors that most likely describe all the characteristics of a person in the hope that some of them will relate to the performance of the work" (Otenko, Chepeliuk, 2018). Competence-based selection predicts the best performance and retention of staff and allows you to combine the policy and culture of management – in recruitment, career planning, performance evaluation and development. This approach recognises that it is more difficult to form such components of culture as motivation, values, and beliefs, as knowledge can be acquired and developed.

The institutional approach defines an enterprise as a social institution that preserves knowledge in the «rules of behaviour», which are constantly changing form, protected, and modified (Otenko, 2008) through tools:

1) scanning, that is, to obtain information for the development of a cognitive map of the organisational and external environment, so it includes developing a map of «what is» within the environment and identifying any problems or opportunities provided by the environment;

2) codification, by which implicit, in other words, «hidden» knowledge of employees turns into «open» knowledge of the enterprise. The codification makes it possible to benefit from employee's knowledge, even when he or she left it, and is a prerequisite for a rationally organised learning process;

3) transfer, when the knowledge of employees is codified to other departments of the enterprise, which positively affects the speed of operation of the enterprise. This is the diffusion phase which consists in the communication and dissemination of codified knowledge within the organisation;

4) reconfiguration based on abstraction and absorption of knowledge, which gives the company the opportunity to develop new organisational skills that arise through the recombination of existing knowledge in the enterprise and through the generation of new knowledge. Abstraction is a statement of codified knowledge to its most essential characteristics and its use in a wider range of situations. It expands the range of potential areas of application of knowledge and allows you to transfer it to other markets. The ability to absorb knowledge is considered as the ability of employees of an enterprise to

learn – to perceive and process new information, as well as reuse practical experience with new knowledge, competences, and skills.

Regarding the development of the knowledge and skills of staff, the current situation has made it possible to identify certain trends in this area. One of the most relevant trends is the use of game technology in HR processes. The game approach can be used for interviews, staff adaptation, training and motivation, and feedback. This approach was particularly relevant in the context of the entry into the labour market of generation Z. Young professionals are characterised by their dependence on digital technologies and information overload. The main principles of the game approach are to maintain the attention and interest of the audience through aesthetics; gameplay, emotional engagement and social interaction.

The second trend – the self-made model assumes that employees' relations with companies will be free, companies will not tie employees to their workplace so rigidly; partnership and project models of cooperation will form. As a result, everyone will switch to the Anglo-American educational model, when an employee takes responsibility for himself (for his education, development, goals, achievements) and leads the educational process himself.

The business reality today is extremely dynamic. New technologies are being introduced daily, concepts and strategies are changing, and new requirements for specialists are emerging. Gigantic information flows require a lot of flexibility from businesses and employees. In 2021, a person cannot afford to once and for all learn any speciality and practice it all his life without learning new things. Moreover, what is required of a modern professional is not only professional competence, but also high social intelligence: the ability to interact with people, to defend points of view, or vice versa – to challenge correctly, keeping calm and working under difficult circumstances, properly prioritising tasks etc. Thus, Upskilling is one of the leading trends in 2021.

Corporate learning has long been well established in most companies. The state coach is now not uncommon, even in small companies. In recent times, however, it has been increasingly felt that staff members are overwhelmed by training, and the training itself is often unsystematic and chaotic. In such circumstances, the assimilation of new information is not effective. In addition, staff members themselves view training as an obligation, not an opportunity or privilege. Thus, more and more companies are coming to believe that a truly literate and useful education requires not only a coach, but also a methodologist with modern approaches to corporate learning. In practice, this means that the greatest emphasis will be placed on addressing real needs, increasing the loyalty of training programmes, defining strategies and tactics, and building common and individual learning plans. Learning tools will also be optimised. The general trend is to visualise and simplify information. In an environment of information overload, important information will be presented in a brighter, more dynamic, and more concise manner – the greater the chances of its assimilation. It is the task of educators in 2021 to simplify and visualise information that is difficult to understand and assimilate.

Another trend is the changing role of corporate universities. In the new realities, this role will focus on personalising the process. It will be necessary to help employees understand their hard and soft skills. And how far it will go, how much it will cost and how long it will take to reach a result. The Corporate University will cease to be a creator of content, but will rather

become a Researcher who will be able to search for best practices and solutions, helping each employee to build their individual development system.

5. Conclusions

With the acceleration of business cycles (from low to peak to back) now the shortest in all time, all accompanying processes are bound to accelerate as well. This is because the digital age has made client expectations higher than ever before. In such a situation, the optimal solution for maintaining an enterprise's own competitive position is to actively train staff to respond quickly to such expectations. The COVID-19 pandemic has only highlighted the need to introduce an effective model of human-technology interaction into business operations and turn them into real social enterprises.

It is therefore advisable for enterprises wishing to actively develop in the future to actively introduce current trends of dynamic, personalised training and development of personnel into their own business activities. In particular, the use of gaming technologies in personnel management processes (for interviewing, staff adaptation, staff training and motivation, etc.) In the case that most of them are members of the Z. In parallel hr-generation)Managers also need to consider the general trends towards visualising and simplifying information that employees need to assimilate.

Special attention should be paid to the training model for staff. In the dynamic environment, the Anglo-American model of education should be considered, in which the worker assumes responsibility (for his education, development, goals, achievements) and himself directs the educational process and develops his own social intelligence (the ability to interact with people, to defend points of view or vice versa – the right to challenge, to remain calm and to work in difficult circumstances, wrong to prioritise the tasks assigned to him, etc.). At the same time, hr-management should direct its activities towards finding the best practices and solutions, helping each employee to build their individual development system.

All this supports the basic hypothesis of the study that digitisation plays a significant role in the development of enterprises and the economy as a whole, and that knowledge is a strategic resource that contributes to such processes.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES

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THREE EASTERN CASES OF YOUTH UNEMPLOYMENT TRENDS – BULGARIA, ROMANIA, SERBIA[3]

The purpose of this paper is to conduct a comparative analysis of the youth unemployment situation in Bulgaria, Serbia and Romania, relatively similar to economic development and with different EU member state status. It analyses distinctions in the corresponding rates on a national level and makes an attempt to summarise skills required in these labour markets which young people need to improve.
Methodology: The article is a continuation of previous studies of the authors based on youth unemployment in Bulgaria and, in particular, the barriers before young people to enter the labour market successfully. The research focuses on trends of the levels of unemployment of young people during recent years using publicly available data from Eurostat as well as the skill mismatches which challenge youths to be more successful when starting their careers. The study gathers information from relevant scientific publications as well as from various reports, dedicated to this topic.
Findings: The article distinguishes between the different trends in youth unemployment, looking for specific reasons. It also suggests common barriers for young people to enter the labour market in the countries under review.
Practical implications: A clear view on the movement in unemployment rates amongst young people in neighbouring countries and the main barriers for them to start successful careers could be prerequisite for the countries commented to improve their policies towards management of this issue. Moreover, they could combine their efforts and create a synergetic effect trying to tackle the problem regionally.
Originality/value: The paper aims to outline common challenges of a few neighbouring countries in the Balkans and, as a result, formulates trends typical for those countries which could be applicable to the bigger part of the region. The study incorporates two points of view – from a national and individual perspective to analyse labour markets.
Keywords: youth unemployment; labour market; skills mismatch; Bulgaria; Romania; Serbia
JEL: J13; J24; J64

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1. Introduction

Youth unemployment has consequences beyond the personal loss of the individual and has negative outcomes for the social and economic future of Europe in the medium and long run (Dietrich, Möller, 2016). To analyse the problem and current situation, numerous variables have to be considered. It is linked with economic growth, population, specific conditions in different countries. On the other hand, youth employment is dependent not only on national and regional indicators, but on the individual performance of young people as well. Due to this fact, the differences between countries become even more – for instance, Pastore (2018) claims that youths receive unequal and incomparable preparation in different educational systems. According to his research, young people in Southern and Eastern Europe experienced the outcomes of the global financial crisis in one of the worst ways in Europe. Youth unemployment affects negatively individuals not only at a particular moment, but could have scarring effects identifiable throughout the continuous working life of these people (Mroz, 2006; Eurofound, 2018; Scarpetta et al., 2010). In addition, while an increasing number of young people are attending schools and universities, their employment, income and participation rates decrease (Pastore, 2018).

Another global trend, that worsens the overall situation of employment is the pandemic, which affected all aspects of economic and social life. In particular, in terms of conditions of labour markets, young people will have to face even more challenges (Grzegorczyk, Wolff, 2020). Also, due to the urgency of the situation many governments did not consider the specific needs of youths when implementing measures to mitigate Covid-19 effects (Van der Graaf, 2021).

Some factors are typical, especially for East European countries, including Bulgaria, Romania and Serbia. Marku (2017) claims that the difficulties these states suffered amplified the levels of unemployed young people affecting the EU. Pastore (2018) support the view that young people in southern and Eastern Europe experienced unemployment in a worse way compared to other parts, especially after the global economic crisis. Usually, such circumstances force youths to practice mobility (Marku, 2017), but in the current pandemic situation, this would not be possible.

The purpose of the research is to make a comparative analysis of the trends concerning young people of labour markets in Bulgaria, Romania and Serbia. The targeted countries have differences in economic development, as well as different access to EU supporting financial instruments. The study will also summarise the main skills youngsters need to be successful at starting their careers and point out the general mismatches between employers' needs and the preparation provided.

2. Methodology

The article takes on a systematic approach using secondary data to conduct a comparative analysis of labour markets' conditions in Bulgaria, Romania and Serbia. In short, it applies a descriptive method, using synthesis and analysis, statistical research, including graphic method.

The first part of the study reviews scientific literature and what are the perceived factors which determine youth unemployment. Trends common for Europe as well as the three states are outlined. The paper builds on another article studying the topic within Bulgaria (Vutsova, Arabadzhieva, 2021). In the current research, the authors try to establish which characteristics are common for the region through investigating the specificities of labour markets in the three neighbouring countries.

To illustrate the current conditions, the study compares national trends of different indicators based on publicly available data, provided by Eurostat. To evaluate the extent to which economic situation affects the working environment for youngsters, the article uses analysis of the correlation between youth unemployment and business cycles in the countries under review. The data is part of a current thorough analysis on tendencies in Europe and indicates which are the most important common characteristics for Bulgaria, Romania and Serbia.

However, despite benchmarking key indicators of labour markets, youth's performance and employment are related to independent factors as well. In order to elaborate on them, the article tries to explore the topic from the perspective of the individual and discusses common barriers before young people entering the labour market. In this way, the research is focused on youth both from a national and regional point of view as well as personal – commenting on major points related to youth unemployment in the neighbouring countries. To complete the task, the authors conduct comparison analyses based on previous research on youth's challenges starting their careers. The information was summarised by national organisations for each country gathered analysing documents, regulations, policies, observation and in-depth interviews with employers and other stakeholders.

This theoretical approach will allow making conclusions, that are the main points governments might take into consideration when tackling the issue of youth unemployment.

3. Factors Influencing of Youth Unemployment – A Brief Review

At a national level, youth unemployment policies and the career opportunities of young people are implemented through specially designed measures and interventions managed by various institutions, strategies, plans and policies in general. Most of them directly or indirectly influence the building of youth organisations and formations and increase the capacity of young people who take part in them. The gap of policies is identified and highlight problem areas for which additional efforts need to be made to support and encourage young people. In the Bulgarian case, there is a lack of a mechanism for monitoring the extent to which young people are involved in each of the implemented projects, in which youths are the main beneficiaries. This leads to difficulties in measuring their effectiveness and gaining knowledge about the opportunities and deficits in the field of youth capacity. In Serbia, the recommendations can be thought of as similar and complementary to the problems, identified in other two countries, part of the European Community. The state has noted the lack of established standards for working with young people and their organisations or formations. Accordingly, there is no official body or institution to monitor compliance with these standards. This raises the question of whether youth unemployment is tackled as a priority.

One of the main factors related to unemployment is economic growth. Many studies claim that business cycles impact levels of youth unemployment in a stronger way compared to the effect on adult unemployment (Tomic, 2018; Dunsch, 2017; Marconi et al., 2016; Gontkovičová et al., 2015; Hutengs, Stadtmann, 2014). Considering the economic situation, the European Commission (2013) also states that young people are more affected in terms of available work opportunities, more often employed temporarily and usually are the first to be dismissed as they have the least amount of experience. Scarpetta, Sonnet and Manfredi (2010) claim that because they are temporarily working, youth usually are less protected by employment policies and therefore more sensitive to economic changes. Part of the reason why youth unemployment is more susceptible to nosiness cycles is their employment in cyclically sensitive industries and working in SMEs (Scarpetta et al., 2010; European Commission 2013). In addition to macroeconomic factors, the demographic situation has its impact as well, considering population growth and shares of specific age groups (Cvecic, Sokolic, 2018).

Some EC instruments help to tackle their unemployment problem, but unfortunately, they have a very temporary in time effect. Most of them are applicable in Romania and Bulgaria as member states.

Many researchers study other factors determining youth unemployment (Eichhorst, at al., 2013; Bell, Blanchflower, 2011; Scarpetta, et al., 2010). They all agree that such characteristics are:

- less work experience;
- inadequate or incomplete education;
- working on more unstable circumstances, related to the terms and conditions of the contracts;
- less developed professional networks and consequently fewer opportunities to benefit from such during a job search;
- difficulties due to skill mismatches.

These factors are all typical for the three countries at the current moment and clearly represent areas where measures are to be taken by the governing authorities. Of course, account should also be taken of the fact that the life standard in these countries is significantly different from the EU average, and this should also be taken into consideration when designing possible targeted measures.

These obstacles are not only common for young people as a whole, but are related to the so-called “scarring effect”. The German Institute for the Study of Labour (Nielsen, Reiso, 2011) defines this effect as “the negative long-term effect that unemployment has on future labour market possibilities in itself”. In addition, once an individual has experienced unemployment, they are more likely to suffer negative aspects of the labour market. Ayllon and Ramos (2019) claim that this aspect could become one of the most serious challenges for Europe as it could lead to a decrease in education and training investment, in tax income and “brain drain”, when youths seek work opportunities abroad. These assumptions could be visible in Bulgaria, but their effect is also enhanced by the pandemic wave. Systemic brain drain, for more than

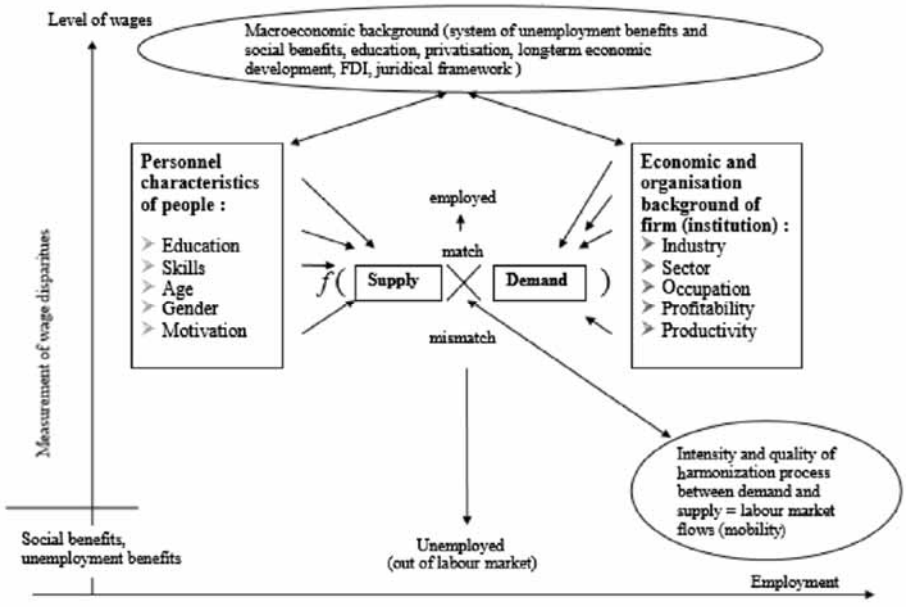
30 years, proves to be a challenge before all Bulgaria, Romania and Serbia. In practice, the need for educated and skilful young people is rising, and the same are leaving, which leads to a vicious circle and aggravates the situation. Temporary measures taken by the governments of the subject countries are not able to solve the problem radically. It is necessary to adopt good international practices to ensure the attraction and/or retention of educated young people in these countries. The introduction of a package of targeted measures with an appropriate time frame is a possible solution.

Another important factor related to youth unemployment to discuss is the migration with the EU. Franc (2019) reports that more often, young people are immigrating to countries where economic growth is observed. The study shows that emigration quickly responds to changes in business cycles, which lead to the conclusion that young people are among the first to leave their country in search of work opportunities. Countries in Southeast Europe show steady high levels of emigration of youths and brain drain (Gjorgjievska, 2020). In some cases, this migration is a mimicry that starts as training abroad, but very quickly transforms into temporary employment. Other researches also confirm that Bulgaria, Romania and Serbia are considered migrant-sending economies (Noja et al., 2018). Still, given the limitations in migration opportunities due to the pandemic, governments could think of a way to support especially the skilful and educated young people.

The figure below represents different aspects from the supply and demand side of the labour market.

Figure 1

Processes and factors influencing the labour market competitiveness



Source: Filipova, Gottvald, Simek, 2005.

The graph shows that on the one hand opportunities for youths are determined by macroeconomic factors and also the environment in which companies operate. The latter includes the system of unemployment and social benefits, which is closely connected to the decision of young people to be part of the active labour force. On the other hand, personal characteristics play a crucial role in the realisation of the labour market. Not only education and training, but also individual and soft skills are becoming more and more for finding employment. The lack of a proper skill set is often considered as a cause for unemployment.

An analysis conducted by O'Reilly et al. (2015) adds to and summarises the main factors which determine youth unemployment. Namely, these are:

- labour market flexibility associated with high shares of part-time and temporary contracts for young people, as well as an increasing number of internships or student practices, very poorly paid or not paid at all;
- skills mismatch – the imbalance between labour supply and demand and inadequate preparation for the labour market;
- youth migration within Europe – mobility of young people, part of whom are moving from East to West to find better work opportunities. While generally this situation is seen as balancing youth unemployment in Europe, in practice for the individuals, it often leads to unfavourable working conditions in terms of short and temporary contracts;
- family inheritance – it is estimated that children of long-term unemployed parents are likely to follow their working experience;
- youth unemployment is seen as a pressing issue and there is wider support on a European level.

During the last year, it became evident that the overall economic situation, including labour market conditions and youth unemployment, could be rapidly aggravated due to unexpected events like the pandemic. It is estimated that Covid-19 has increased unemployment, mainly in the south of Europe (Georgiou, 2021). Another effect is that young people are particularly vulnerable and likely to suffer a lack of education and economic opportunities (Van der Graaf, 2021). A report by the International Labour Organisation (2021) states that young workers are among the hardest hit by the pandemic effect during 2020 across all regions and income levels. The consequences of the pandemic also resulted in people moving towards inactivity rather than unemployment. This is especially true for young people, representing low-income countries. A big part of the ones to enter the labour market for the first time did not join the labour force (ILO, 2021). Again, Bulgaria, Romania and Serbia are countries for which these threads apply.

4. Labour Market in Bulgaria, Romania and Serbia

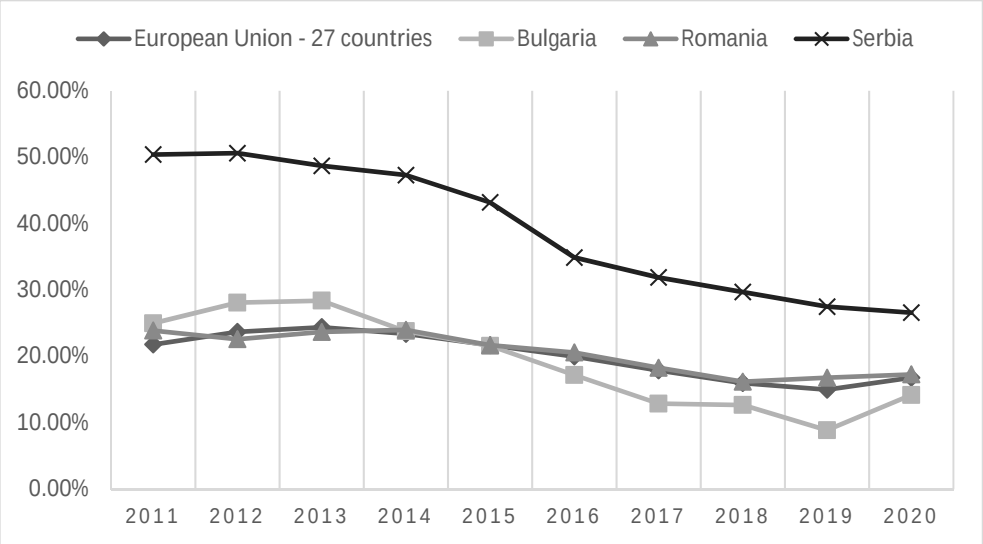
Until 2019 general trend of unemployment is to slowly decreasing, not surprisingly in 2020, the percentage of unemployed (Eurostat). An interesting exception is Serbia – there overall, as well as youth unemployment has slightly dropped. The European Commission (2021) explains this small decrease with the falling labour participation in the country. Still, youth

unemployment in Serbia is associated with extremely high levels, the corresponding rates in Romania have been continuously slightly above the average for the EU and Bulgaria presents a better situation where the rate of unemployed young people has been below the EU average since 2015.

The variations of youth unemployment over the last decade in the three countries are represented in Figure 2.

Figure 2

Trends in the youth unemployment rate in percentages over the period between 2011-2020 for Bulgaria, Romania, Serbia

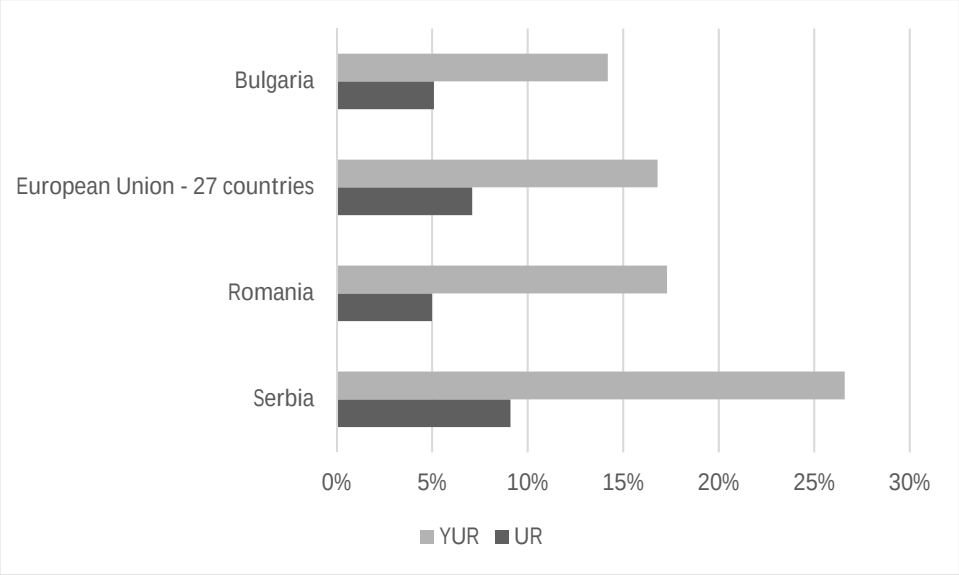


Note: Data for the youth unemployment rate in Serbia for the period between 2011-2013 is not available in Eurostat, and the numbers were taken from World Development Indicators, provided by the World Bank.
Source: Eurostat, World Bank.

Figure 2 shows the tendencies in youth unemployment over the last 10 years in the countries under review. Serbia permanently holds higher rates of unemployment among young people, which even decreasing still remain higher than the corresponding rates in Bulgaria and Romania. While these levels in Romania are close to the average for the 27th countries in the EU, the number of unemployed youths in Bulgaria has decreased during the last 4 years. Although there has been a decrease in youth unemployment over the last decade, they continue to be a serious issue for the 3 states, especially when analysing them in relation to average unemployment.

Figure 3 shows the ratio between youth unemployment and the average unemployment rate for 2020 in the countries under review.

Figure 3
Comparison between youth unemployment and the average unemployment rate for 2020 (%)



Source: Eurostat.

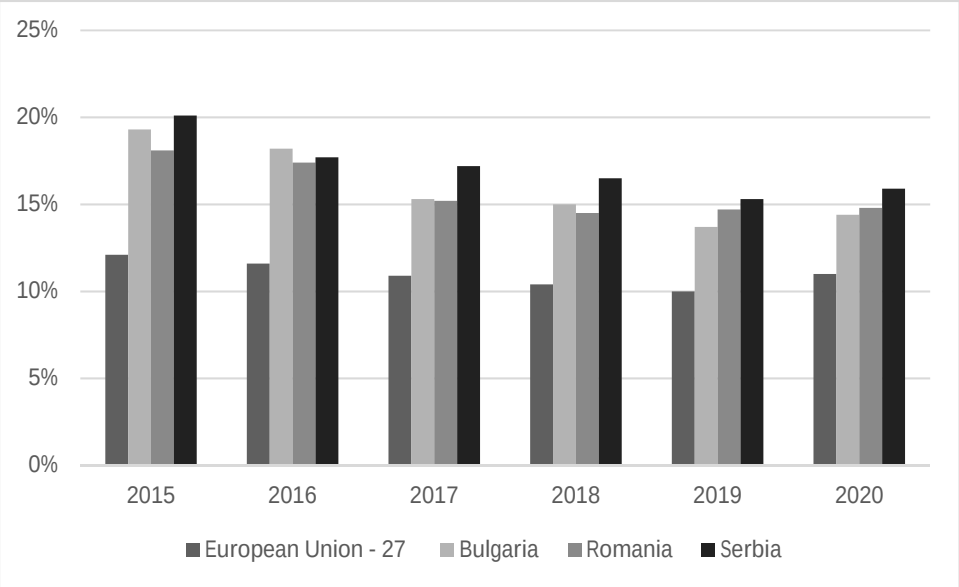
As mentioned above, the level of youth unemployment does not present the full picture of young people who are discouraged from participation on the labour market. More and more become inactive due to barriers, that prevent them from a successful professional start. In this relation, an interesting index to look at is NEETs – young people neither in employment nor in education and training. The figure below shows how percentages of this group have changed during the last five years.

What draws attention is that all three countries have higher rates of NEET compared to the EU average throughout the given period. This fact implies that a challenge before these states is to involve more youngsters in the labour market or in preparation to enter it. This is proven by the percentage of young people who are active, but not seeking employment – it almost doubled for Serbia for the last year, being 11.8% in 2019 and 20.8% in 2020. Predominantly Serbia scores the highest levels of youths outside the labour force and education system, but percentages for all countries have been close throughout the years. In Serbia, this trend is due to the fact that previous generations had the opportunity to study and work abroad, unlike Bulgaria and Romania. A decrease in this group is observed until 2019, but due to the pandemic, there has been a slight increase of NEET in 2020 (ILO, 2021).

The disproportion between labour supply and demand is represented by the labour market slack. This indicator reflects "the unmet demand for paid labour within a given population. The term describes the shortfall between the workers' desired amount of work and the amount of paid work available" (Eurofound). The imbalance is most perceivable in Serbia and more moderate in Bulgaria and Romania.

Figure 4

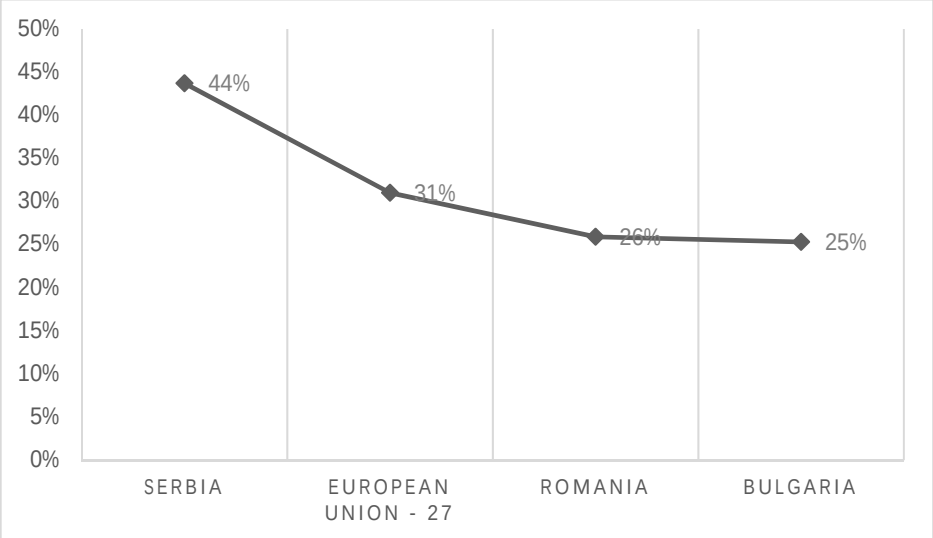
Share of NEET as a percentage of the total population for the period between 2015-2020



Source: Eurostat.

Figure 5

Labour market slack as a percentage of the extended labour force in 2020



Source: Eurostat.

Provided the fact that the effects of the Covid crisis are yet to be experienced, it is vital to analyse to what extend youth unemployment in the countries under review is related to business cycles. A recent research (Vutsova et al., 2021) studies the correlation between GDP and youth unemployment applying data from Eurostat on a quarterly basis. The relation between GDP and youth unemployment level is stronger compared to the one to overall and adult employment. In Table 1, information about the countries under review is shown.

Table 1

Correlation between GDP and youth unemployment

Age	Between 15 – 25	
Country	Correlation	Significance level
Bulgaria	-0,93471	0
Serbia	-0,89016	0
Romania	-0,88375	0
European Union - 27	-0,86621	0

Source: Eurostat, Vutsova et al., 2021.

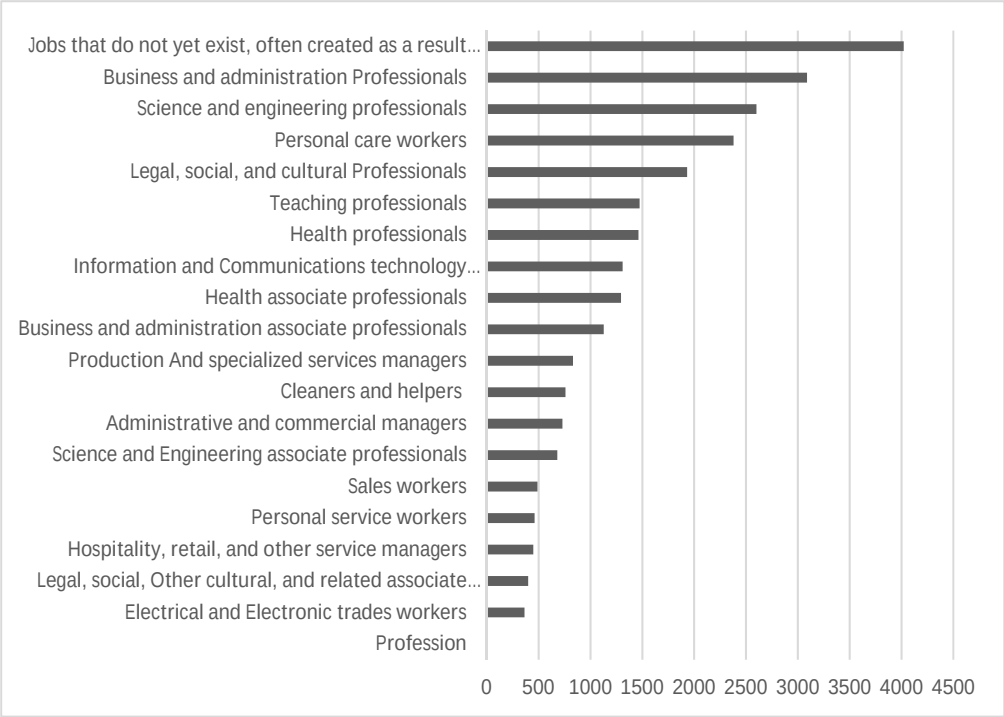
Youth unemployment is more sensitive to variation in GDP in all countries compared to the EU average. These countries are still developing and under these conditions GDP influences more strongly the population left out of the labour force. This further reaffirms the importance of tackling youth unemployment as the post-Covid economy situation will mostly likely result in difficulties for young people entering the labour market. Moreover, this situation requires rapid economic transformation and young people with new specific digital skills, which is difficult to achieve in a short time. Previous research (Cedefop, 2016) also suggests the need for new types of skills supporting the transition from primary and manufacturing activities towards knowledge-based services. The report envisages that more specialists with higher education in specific fields (engineering and natural sciences) will be needed on the labour market in Southern Europe. A current study by Cedefop (2021) claims that the demand for knowledge of ICT systems and applications, especially in business and public services, different software and web tools, including ones for data analysis, make up for around 50% of the growth in skills demand.

From other perspective, the labour markets will be changing due to the restructured demand for jobs. Figure 6 shows the occupation groups which will be mostly needed by 2030 in Europe, according to McKinsey Global Institute (2020).

It is visible that a considerable amount of the jobs which are expected are related to the transformation to the digital economy. The study does not name all of them as in recent decades, markets are changing fast. Since 2019 OECD has also found a tendency that future jobs will include non-standard work. It is supposed that the high share of workplaces is becoming vulnerable as a result of the pandemic, the importance of the demographic characteristics, as well as the shrinking share of migrating population.

Figure 6

Job growth by 2030 by occupation groups only in thousands



Source: McKinsey Global Institute, 2020.

Another specificity for the European labour market will be that more and more professions will require workers with tertiary education at the expense of jobs without this requirement. The report also states that a crucial element for all local economies will be to overcome labour market mismatches. However, in the countries under review, trends are also determined by the economic development during recent years. This means that in some aspects, the demand, driven by new technologies and digitalisation, could be slower in the region.

An important characteristic of the labour market of Southeast Europe is that for the last 10 years, one of the fastest developing sectors has been sourcing (Bulgarian Outsourcing Association, 2019). Bulgaria and Romania are the SEE countries with the most investments in other companies within the region and Serbia is a large sourcing destination itself. The countries present favourable conditions for international companies to outsource activities: low corporate tax rates, average hourly labour costs, language skills and education, cultural similarity to European and North American clients, government support and small-time zone differences. From this perspective, more digital skills will be required from young people.

The effect of Covid on future employment could not be estimated entirely. Its consequences are experienced differently in different economic sectors and types of workers (Lee at al.,

2020). The worst-hit industries remain the ones requiring direct contact with people and travelling.

The youth labour market in Bulgaria, Romania and Serbia has several common specificities. As mentioned, the three countries have high levels of youth unemployment, especially Serbia, which is considerably higher than the average EU unemployment rate. At the national level, these levels are significantly influenced by the economic situation, which is worsened by the pandemic, their relevant psychological consequences for workers and the starting financial crisis. At the same time, there is no coordination and coherency between governments and other youth organisations, which makes it difficult to access the opportunities and weaknesses of the implemented youth policies. From an individual point of view, as part of tendencies across Europe, young people will need to improve their digital skills to be better prepared for entering the labour force into the transformed world economy. The need for more specialists with higher education should be well understood. It is not about simply more youngsters with university diplomas, but people with specific skills, which they are trained to apply into their future job. The challenges before youths are even serious, taking into account the demographic situation in the three countries and the fact that their group is the most vulnerable on the labour market in terms of job stability.

5. Barriers before Labour Market Inclusion

To analyse barriers to youth for labour market inclusion the article analyses research of skills, demanded by the labour market in the countries under review. The Center for Research and Analysis, Bulgaria, together with partner organisations from Serbia and Romania, makes an overview of the youth labour markets in the countries. The skills-based profiling and matching model, which helps to better identify the strengths and weaknesses of job seekers and to define job search action plans. The use of this model brings benefits for all parties: job seekers, economy/education system, as well as for career practitioners or other employment intermediaries. Profiling on the basis of skills is carried out in several stages, by checking basic skills, filling in questionnaires, self-assessment tests, practice tests, conducting interviews and more. Serbia has also aligned itself with the most sought-after competencies in the global labour market in the transition to a fully digital economy.

Diagnostics on required skills of young people for sustainable employment opportunities show that the new skills needed in the digital society are related to different skills sets. Similar skills are sought in young people in the three countries, accompanied by other predominantly soft skills that are most preferred by employers.

In Bulgaria, abilities that can provide sustainable employment in the digital society are concentrated around literacy and numeracy skills, problem-solving skills in technology-rich environments, cognitive and socio-emotional skills and high-level ICT skills. Romania also notes the importance of similar skills and includes a recommendation aimed at including digital literacy, ICT and programming skills, and targeted extra-curricular activities in very early school curricula. The requirements, indicated by employers in Serbia are similar.

All of these required skills could be summarised as lack of proper qualifications of young people entering the labour market. Higher education does not prepare them properly and in the three countries, it seems that young people are aiming at acquiring a degree more than gaining useful knowledge and skills. There are other characteristics that prevent them from successfully starting their careers as well. In addition to proper qualification, youths generally lack proper preparation in terms of education. Too often, training and education do not offer what is expected by the employers and relevant institutions should aim to provide work competences (Pastore, 2018). Another dimension of the issue is the education attainment level. In some countries like Bulgaria, for certain jobs, people with secondary education are sought (Ministry of Labour and Social Policy, 2019). CEDEFOP (2021) suggests that VET could be a solution to the challenges presented by the pandemic and the exposed digital skill gap. At the same time, more and more evidence is gathered around the idea that the number of employees with a tertiary education will have to increase in order to respond to new trends in the labour market (McKinsey Global Institute, 2020). However, only increasing the number of young people with a university degree will not solve the problem. The skill mismatch is partially due to the inadequate programmes provided by a higher education institution, which are not fully and properly preparing their students for working life (Lauder, Mayhew, 2020; CEDEFOP, 2021), as higher access to tertiary education, does not necessarily mean fit to enter the labour market. In addition, crises, which are to be expected due to the shrinking of the economy, lead to a decline in employment among groups with the lowest qualifications (Nonchev et al., 2011).

Other challenges for young people starting their professional path usually are the lack of experience, the lack of information about vacant positions, unrealistic expectations, overall economic situation, constrained opportunities due to location, disability or discrimination (Center for Research and Analysis, 2020).

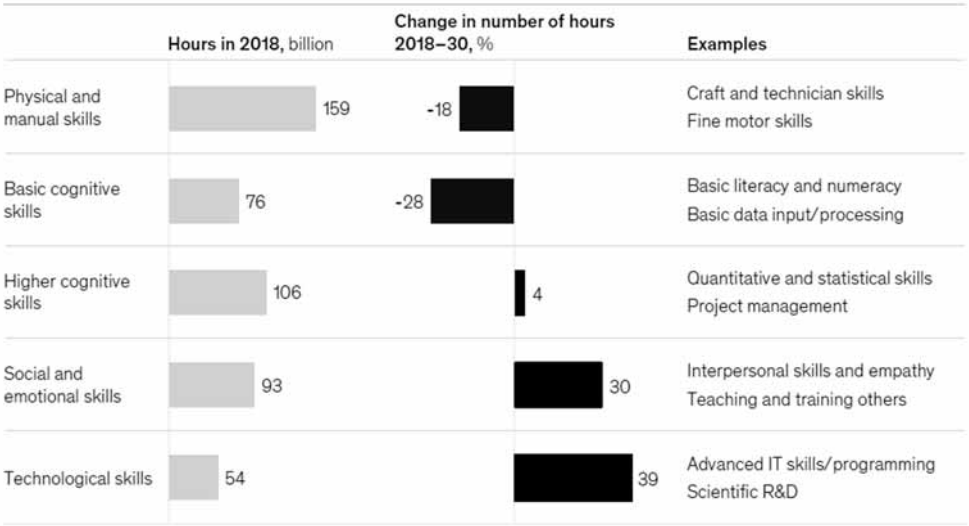
Figure 7 illustrates both the skills needed for the new economic paradigm and potential industries with the prospects to create more jobs. It is not surprising that in the forthcoming years, the physical and manual skills, as well as basic cognitive skills, will become less and less needed on the labour market and technological and personal, i.e., social and emotional or soft skills will be mostly sought after. According to Cedefop Skills OVATE (Online Vacancy Analysis Tool for Europe) (2020), two of the five most sought skills during 2020 are working with others and adaptability and resilience, both of which represent human qualities. To support the evidence of Mc Kinsey Global Institute research, Cedefop analysis points to digital (technological) skills as most needed in recruitment.

The European Skills Agenda (2020) points out the increasing demand for transversal skills like working together, critical thinking, and creative problem-solving. Moreover, the agenda focuses on the importance of personal qualities such as empathy and adaptation to change.

All of these factors create a space where young people should improve their technological and digital skills, and at the same time, their human and personal characteristics and motivation will have crucial significance.

Figure 7

Demand for technological, social and emotional skills in Europe



Source: McKinsey Global Institute, 2020.

6. Results

The countries under review are no exception from the general trend and have much higher levels of youth unemployment compared to the overall one. For Romania and Serbia, these numbers are above the EU average. Although young people in Bulgaria seem to be in a better situation, the numbers of NEET continue to be high even more after starting to experience the effects of the pandemic. Dealing with this specific group of youngsters forms one of the challenges before the labour markets in Romania, Serbia and Bulgaria.

Labour market conditions in Serbia appears to be the most difficult for young people to start their professional life. Still, most of the problems typical for this country overlap with the ones in Bulgaria and Romania – generally high percentage of young unemployed, a trend to emigrate towards economies with GDP growth, need for better preparation for entering the labour market in terms of education. Moreover, all three states show a high correlation between GDP and youth unemployment which is a prerequisite for deepening the problem in the forthcoming years.

Labour markets in Romania, Serbia and Bulgaria are determined by slower economic development, as modest innovators and, in part, are less responsive to the needs of digitalisation compared to Western European economies. Still, given the expected trends, more young people with tertiary education to enter the workforce will be needed. But the crucial moment will be overcoming skill mismatches. Post-covid higher-skilled service sectors showed growth (ILO, 2021), which is an additional reason and warning for the importance of adequate preparation for the labour market and, respectively, the need for a new type of trained labour force.

The research into national labour markets' supply and demand showed that in all countries, there's a need to strengthen cooperation between employers, educational institutions, as well as institutions that deal with career counselling. Such actions will contribute to coordinated action between the states to contribute to the improvement of methods and services related to supporting, training and preparation of young people for their participation in the labour market as a whole.

7. Conclusion

Bulgaria is a typical representative of East European countries (Vutsova, Arabadzvhieva, 2021). Common trends with Romani and Serbia describe common problems for the region and, to some extend, for Europe. The EU tendencies are related to the overall downturn of economies and restricted migration due to the Covid-19 crisis. Both of these factors will affect mostly young people and pose an additional burden for them to start their careers successfully. In addition, there are a few main characteristics of the three neighbouring countries which represent the situation in Europe.

- Uncertain labour market conditions. At the moment, it is difficult to predict how labour markets will change. On the one hand, it is not clear what would be the effects of the current pandemic situation and on the other how will economic sectors and the way of work transform over the coming years. It is almost clear, however, that digital transformation will be high on the agenda of the countries.
- Youth migration is heavily restricted and even after more than a year of the initial outbreak of Covid-19, travelling is extremely limited. This, of course, restricts, to some extend, one of the EU's fundamental freedoms – the free movement of people, but also has an effect on active economic emigration aiming at stable working places.

What is specific for the region and specifically for Bulgaria, Romania and Serbia are:

- Youth unemployment. It is a pressing issue among Bulgaria, Romania and Serbia and it is likely to aggravate. Young people suffer not only from fewer work opportunities, but also the proper education and training provided to them suffered (Lee et al., 2020).
- Skill mismatches. Young people are investing in higher education and lacking adequate preparation for the workforce, this is a common situation not only for Romania, Serbia and Bulgaria, but a considerable part of Europe (Lauder & Mayhew, 2020). The digital transformation gap became especially evident during the last year and reaffirmed the importance of addressing new skills, required by the labour market. This imposes coherence on employment policies and educational policies.
- Lack of motivation and a good understanding of forthcoming eeconomic transformation. Young people from these countries seek to obtain a degree of higher education (HE) rather than be motivated to study a specific speciality and then put it into practice. The fetishisation of a HE certificate without a clear awareness of the performance of a specific job increases the risk of lack of employment. Preferences towards study in the so-called soft sciences also contribute to this risk.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES

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Kameliya Savova[1]

EFFECTS OF COVID-19 IN THE FINANCIAL STATEMENTS FOR A YEAR OF GLOBAL PANDEMIC – EVIDENCE FROM BULGARIA[2]

An important purpose of the financial statements is to communicate between the stakeholders and the reporting entity.
Performing such a function in a year of global instability is a challenge to provide reliable information on the effects of COVID-19.
The objective of the research is to assess on the basis of information in the financial statements for the year 2020 the impact of the Coronavirus pandemic on the liquidity, the revenue and the financial results of industrial enterprises listed on the Bulgarian Stock Exchange and their expected performance.
The research methodology is based on studying the effects of COVID-19 on the economic activity, an analysis of their manifestation in the activities of industrial enterprises, listed on the Bulgarian Stock Exchange, based on their published financial statements for the year 2020, summarising, comparing and graphically illustrating the results for two reporting periods, a study of the management's assessment of the potential risks and the development of the individual enterprises next year.
The results and the conclusions of the study are: COVID-19 has a different impact on the revenue, liquidity, profits and losses of the enterprises in the extract; the usual dependencies in the dynamics of the studied sites are violated, the principle "going concern" is followed.
Keywords: effects of COVID-19; financial statements; profit/loss; revenue; liquidity; Bulgaria
JEL: M40; M41

1. Introduction

Mankind experienced a year of a global pandemic. The established approaches to individual and corporate behaviour, to social and political life, to the overall activity of the Earth changed. Entrepreneurial, intellectual and scientific research thinking discovered new forms for existence and for overcoming the pandemic disaster.

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[2] This paper should be cited as: *Savova, K. (2022). Effects of COVID-19 in the Financial Statements for a Year of Global Pandemic – Evidence from Bulgaria. – Economic Studies (Ikonomicheski Izsledvania), 31(3), pp. 111-129.*

The financial statements are of essential significance for tracking the facts about the economic reality and to undertake adequate actions for overcoming the adverse consequences and getting over the potential risks in conditions of extraordinary events such as pandemic COVID-19.

The aim of the study is to assess the impact of the Coronavirus pandemic on the industrial publicly-traded companies' financial position and performance in Bulgaria, in particular, on their liquidity, revenue and financial results, and the expected performance on the basis of an empirical study of the information presented in their financial statements for a one-year period of the global pandemic.

The following tasks are set up for the attainment of this objective:

- to clarify the specifics in the financial statements caused by the conditions of uncertainty;
- to analyse the impact of the Coronavirus pandemic on the liquidity[3], the revenue and the financial results of the enterprises;
- to make an empirical study with conclusions about the effects of COVID-19 on the liquidity, the revenue, the financial results and the expected performance of all non-financial enterprises in Bulgaria, which are listed on the Bulgarian Stock Exchange, based on their published consolidated financial statements for the year 2020.

The research methodology and methods are based on the general principles of knowledge by applying a systematic approach, the methods of analysis, synthesis, comparison, aggregation, empirical research and comparative graphical analysis. A literary review of the impact of COVID-19 on the economy and the significance of financial statements in the environment of uncertainty was made. The specifics of the disclosure of non-financial information about the effects of COVID-19 were studied and determined, as well as the nature of the main types of pandemic impacts on both assets and liabilities of a company. On this basis, the information presented for the liquidity, the revenue and the financial results in the published financial statements of listed industrial companies in Bulgaria are analysed. A comparative analysis using data about the previous reporting period was performed. The dynamics identified is synthesised into significant ranges and the results are summarised by business sectors, and are graphically presented. The empirical data are publicly available on the Bulgarian Stock Exchange website.

Limitations of the study – the studies are for one country – Bulgaria, for all listed non-financial (industrial) enterprises, for their published annual financial statements for the year 2020, prepared on the basis of International Accounting Standards/International Financial Reporting Standards (IAS/IFRS) for the effects of COVID-19 over the liquidity, the revenue and the financial results. The empirical studies are as of 15 July 2021.

The proposed and used methodology does not claim to be the only possible and applicable in verifying and substantiating the results of the research.

[3] The absolute liquidity is analyzed.

2. Review of the Literature

The impact of COVID-19 on corporate performance (Ding et al., 2021, p. 802) is discussed in scientific researches. The conservative approach is applied in accounting, which moderates the role of extraordinary events on the financial position (Sukandani et al., 2021, p. 267). In periods of crisis, the financial statements contribute to a more accurate forecast of the impact of the extraordinary events on the financial health of companies, which is useful for allocating the financial resources (Lizares, Bautista, 2021, p. 5). The individual economies examine the information on COVID-19 presented in the financial statements of the public companies to analyse the relationship between early pandemic reporting and the risks related to prices of the exchange tradable securities (Oğuz, 2021, p. 239) Sustainable long-term effects of COVID-19 on financial instability are proven and analysed in international market researches (Vera-Valdés, 2021). Studies based on the information in the financial statements were published on the effects of COVID 19 on the financial position of listed companies in individual countries such as China (Rababah et al., 2020), Romania (Achim et al., 2021), Poland (Honko et al., 2020) et al.

The international audit company KPMG published a special guide to financial statements in conditions of instability "supplement, which illustrates additional disclosures that companies may need to provide on accounting issues arising from the COVID-19 coronavirus pandemic" (Guides to financial statements, 2020). Grant Thornton presents specific guidelines for the preparation and presentation of financial statements for 2020, defined as "COVID and the financial statements" (Covid and the financial statements, 2020). The International Organization of Securities Commissions (IOSCO) encourages the presentation of accurate and fair information in the financial statements of public companies. It emphasises the importance of disclosures, including information for the impact of COVID-19 on the issuer's operating performance, the financial position, liquidity and future prospects (Statement on Importance of Disclosure about COVID-19, 2020). The International Federation of Accountants (IFAC) adopted a mission to understand and recognise the need for investors and other stakeholders for high-quality financial information during a pandemic crisis. To this end, it provides resources to support the presentation of the effects of COVID-19 when preparing financial statements (Gould, Arnold, 2020). The Companies'financial statements for the year 2020 have been published since the first months of 2021. This is a good time to carry out an assessment of the information presented in the financial statements on the impact of the pandemic (ICAEW, 2021).

It is clear that the effects of COVID-19 on the financial statements is a topical issue that is the focus of the accounting scientific research thought and the professional community. The results of the research on this issue are useful for the reliable presentation and disclosure of the impact of the pandemic on activities of the enterprises.

3. Presentation of the Effects of the COVID-19 Pandemic in the Financial Statements

3.1. Specifics of the information in the financial statements in conditions of uncertainty

From an epistemological point of view, the financial statements present historical, current and future financial and accounting results for an enterprise. This predetermines financial statements as the main reliable source of information to identify the impact of COVID-19 on both assets' and liabilities' position of the economic entities and the possible future risks.

In the applied perspective, the financial statements are subject to accounting standardisation. This qualifies them as recognisable and understandable by presenting and disclosing the assets, liabilities, equity, cash flows, revenues and expenses of an enterprise. ***The presentation*** must be using a standardised format of the components (the ingredients), which form the complete set of financial statements as of the end of the period.[4] The notes to financial statements contain **disclosures**, the nature of which is a presentation of the applied principles, approaches, methods and rules, underlying both book-keeping and preparation of the financial statements. In essence, these are the applied accounting policies and "notes-clarifications" for the digital data of the elements in the financial statements: assets, liabilities, equity, revenue, expenses and cash flows, as well as for the risks that occurred during the reporting period, and projected ones in the foreseeable future.[5] It is understandable that, through a standardised presentation and disclosure of the reporting items, the communication between the enterprise and the interested parties is realised, which is one of the purposes of the financial statements. It can be said that financial statements largely define accounting as the "language of business". Despite the measures to curb the Coronavirus pandemic, businesses continue to communicate.

In a year of uncertainty, the importance of the explanatory information within the notes to the financial statements is essential in decision-making by stakeholders such as investors, lenders, government agencies, the public. The presentation of the assets, liabilities, equity, revenues and expenses by economic nature and in monetary terms for two consecutive reporting periods is the basis for determining the effects of COVID-19. The explanations of their dynamics in conditions of uncertainty are of significance for the users of information when making decisions about the reporting enterprise. In a pandemic year, the notes to the financial statements focused on determining the effects of the extraordinary event in global emergency.

For the financial year 2020, the companies shall disclose the effects of COVID-19 in a special section of the notes to the financial statements. The company's management shall make a judgment for such information. The applied accounting policies, the explanatory notes for the digital data and the forecasted risks are important sources for determining the future performance and position of a company. Moreover, the data in the disclosures and the statements of the analysts influence the decisions of the investors and the prices of the assets.

[4] Financial statements are drawn up for a reporting period comprising 12 calendar months, as well as for a shorter period (interim financial statements), in conformity with the applicable accounting standards and the effective legislation.

[5] The term "foreseeable future" means 12 months after the reporting date (the next reporting period).

(Eachempati et al., 2021) Empirical research proves that: the sufficient and relevant information in the notes to the financial statements exerts an adverse impact on the risk of investments in public companies, and disclosures, in compliance with the requirements of ordinances and regulations, have a weak impact on the investment risk (Wasiuzzaman, 2021, p. 353). The usefulness of the accounting disclosures also has a positive effect on the decisions of the creditors to grant loans (Schneider, 2018, p. 64). Both the capital provided by the investors and the bank loans received are especially needed in conditions of uncertainty.

The financial statements are also subject to legal regulation, which specifies them also from a legal point of view. International and European accounting regulations, directives and standards are implemented in the national economies through the legal regulation of the financial statements. In this manner, accounting converges globally and takes on the appearance of globality. This is why, the effects of COVID-19 on both the assets' and liabilities' position of the economic entities are identified and assessed according to a standardised and generally accepted approach, both for an individual enterprise, state, region and worldwide.

The specifics of the financial statements presented in conditions of uncertainty describes them in theoretical, applied and legal aspect, which is presented in Figure 1.

Figure 1

Financial statements – aspects of treatment

Theoretical aspect	*Applied aspect*	*Legal aspect*
Historical, current and future-oriented financial performance information for the reporting items is presented.	Conceptual and standardised definition of the form, content and components of financial statements.	Legal regulation in the national economies.

The specifically, the financial statements in conditions of uncertainty shall disclose additional information within the notes for:

- the effects of COVID-19 during the reporting period within a special section;
- the potential risks over the next twelve months;
- changes in the valuation of assets and liabilities;
- application of the concept of "going concern";
- other clarifications at the discretion of the management and the regulators.

3.2. Effects of the COVID-19 pandemic on the 2020 financial statements

The Coronavirus pandemic was a non-adjusting event for more companies in 2020. Its nature as a crisis in the entire life on the Earth defines the year as a time of serious instability and anxiety. More than ever, information is needed about the activities of the enterprises in such conditions in order for business communication to be effective and for the global capital movement to continue.

Areas in the financial statements which require constant monitoring of the impact of COVID-19 are the accounting estimates, including the fair value measurements, the impairment of assets, the expected credit losses and others at the discretion of management and the requirements of the regulators. These areas of concern exert direct impact on the income/revenue, the financial performance and the liquidity of a reporting enterprise. The aim is to identify the applicability of the concept of "going enterprise", which is essential for the continuation of the enterprise in the foreseeable future – the next twelve months and not only, without the intention and need for liquidation or cessation of activities (The Framework, §3.9., 2018). This requires companies to make understandable, specific and reliable disclosures.

- Effects of COVID-19 on financial performance

The financial results in an environment of economic instability cover contingencies related to changes in the valuation of assets and liabilities. In this regard, the changes in the fair values, the recoverable amounts and the amortised cost of the assets and liabilities are monitored and analysed.

- *Impact of COVID-19 on fair values*

The fair value is defined as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date". (IFRS 13. 9). It's applicable to assets and liabilities through standardised techniques. In the year of the global pandemic, the fair value is disclosed through the focus of COVID-19 as for each reporting item, which it applies to:

- ✓ the method for determining the fair value is clarified;
- ✓ the possibilities for changes in the assumptions for fair value measurements are assessed;
- ✓ the actual conditions, under which the assumptions for determining fair values we re made, are clarified;
- ✓ the amount of the effects of changes in fair values is disclosed.

The amount of changes in the fair values affects the value of the assets and liabilities using either approach: profit or loss approach, or equity approach. The effects of the application of the profit or loss approach are reflected in the financial result for the reporting period. The effects of the application of the equity approach are reflected in capital reserves from revaluations (other comprehensive income). *Therefore, the magnitude of the impact of changes in fair values on the financial result or on capital reserves, respectively, from revaluations shall be disclosed in the financial statements for the year in conditions of uncertainty*. We share the view that "Fair value measurements may result in different figures for earnings and capital, both of which are important as buffers against insolvency." (Sun, 2014) In conditions of uncertainty and increased market risk, it is indispensable that the fair value assumptions should be based on reasonable facts.

- *Impact of COVID-19 on impairment of assets*

The procedures for impairment of assets aim to present the company's assets at their recoverable amount when their net book value is higher (IAS 36.1). The recoverable amount is "the higher of the fair value of the asset less the costs of disposal (sometimes called net selling price) and its value in use" (IAS 36.6). Therefore, the resources of an enterprise are presented at their lowest value, which is an application of the prudence concept (conservative approach) in accounting. For this purpose, at the end of the reporting period, a test for reduced recoverable amount is conducted with the availability of indications for this. The Coronavirus pandemic was an indicator for testing all assets for impairment by the end of 2020. *The impairment of assets exerts an adverse impact directly or indirectly over the potential cash inflows; the profits; the deferred taxes and, in general, over the overall assets and liabilities*. In conditions of uncertainty, methods shall be developed to analyse the impairment of assets and the risks of impairment through artificial intelligence (Bolos et al. 2020, p. 1-18).

- *Impact of COVID-19 on expected credit losses from impairment*

The expected credit losses from impairment are related to the credit risk for an impossible recovery of the monetary equivalent of financial assets in general, and in particular, within the specified terms, such as the loans granted, the receivables from customers and suppliers, various types of securities and so on are. Therefore, the expected credit losses from impairment depend on external factors for a company and especially on the financial condition of the borrowers, the counterparties and the investors. Due to this, even when a financial asset arises, the possible expectations for credit losses are determined. This is accelerated recognition of losses, which may improve the financial stability (Bolognesi, 2020). In a year of a global pandemic, all companies are affected by COVID-19. This predetermines an increase in the expected credit losses from the impairment of financial assets as objective effects of the pandemic and as a factor for increased economic instability. The standardised approaches for reporting and presenting the expected credit losses from impairment are discussed in IFRS 9 – Financial Instruments. *Their application is reflected as expenditure for provisions for expected credit losses, which affects the financial result and deferred tax assets*. Professional organisations and regulators publish special guidelines for the application of IFRS 9 in COVID-19 conditions. Emphasis is placed on disclosures about the applied approaches when determining the amount of the expected credit losses, the accepted criteria for identifying increased credit risk and assessment of actual credit losses.

- Effects of COVID-19 on revenue

The adopted concept of revenue recognition is based on the transfer of control over goods and/or the services to a customer (IFRS 15.31). This is the ability to direct the use of an asset and to receive the benefits from it. The transfer of the control over the goods/the services may be at a point in time or over time. Under the terms of COVID-19, there is a risk for contracts with customers, which include variable considerations such as discounts, bonuses, additional consideration and so on. There is uncertainty about receiving consideration under the contracts with customers, as well as the probability of increasing the costs on them. It is possible to apply the pessimistic approach to revenue recognition when receiving payment from the customer. The standardised approach requires that the revenue should be recognised at the amount of the consideration, which the enterprise is entitled to, after the transfer of the

control over the goods and/or the services to a customer. In event of deteriorated solvency of a customer, the approach for estimating the expected credit losses is applied. In conditions of economic uncertainty, the concentration of the customers is also assessed. An empirical study found that customer concentration reduces corporate risk (Cao, 2021), a circumstance supporting the concept of a "going concern".

- Effects of COVID-19 on liquidity

Liquidity is the ability of an enterprise to pay its liabilities within the specified period through cash or another contractual financial asset. An aspect of liquidity is also maintaining the value of the assets through which liabilities are repaid. Under the conditions of COVID-19, there is a risk of non-fulfilment of financial commitments and a fall in the prices of the financial assets, which is known as liquidity risk. This requires constant monitoring of cash inflows and outflows, calculating upcoming costs and selling prices, tracking the maturity terms of callable liabilities and collectability of the receivables. Different scenarios for liquidity risk management are possible by optimising the cash flows, some of which are: obtaining government assistance, negotiating a bank loan with the possibility of deferred repayment, approval of an extended term for payment of current liabilities, reduction of the selling prices, rescheduling receivables and so on. In conditions of economic turmoil, the expected proceeds are updated by estimated possible credit losses. It is also appropriate to determine the extreme liquidity risk, which predicts extreme liquidity events (Wu, 2019). These are circumstances in which all liabilities are due at one time and their repayment is through available assets. The monitoring and the management of the liquidity sensitivity ensure effective management of the operations, and thus the concept of a "going concern".

The conclusions for the presentation of the effects of the COVID-19 pandemic in the financial statements for the year 2020 are in the following aspects:

- ***a special section of the notes to the financial statements discloses the impact of COVID-19 on assets and liabilities of the enterprise through summary comparative indicators for both the current and the previous year on the change in the revenue, financial resources, liabilities, volume of the activity and other information at the discretion of the management and the regulators;***
- ***the disclosure of the individual assets, liabilities, revenues and expenses specifies the effects of the pandemic on their estimates and volumes.***

4. Empirical Research

The global Coronavirus pandemic is already having a long-term impact on the global economy. The effects of COVID-19 are various for the business sectors in the individual states. It was established for the EU states that the overall profits declined sharply during the COVID-19 crisis in the non-financial corporations' sectors (Hahn, 2021). A study of US industry groups concluded that COVID-19 had a significant effect on the liquidity of industrial enterprises. The enterprises in the utilities' sector are most affected, and the liquidity of the enterprises in the industry of telecommunications services is the least affected (Farzami et al., 2021). The industrial companies in tourism and transportation in China have

the most serious decline in revenues and profits (Rababah et al., 2020). Analysing the activities of 218 Romanian companies from different business sectors, listed on the stock exchange, it was established that the enterprises in the sectors of research, transport and storage, construction and agriculture achieved better financial results in 2020 as compared to 2019 (Achim et al., 2020).

The effects of the COVID crisis on the activities of non-financial enterprises in Bulgaria listed on the BSE (Bulgarian Stock Exchange) are determined on the basis of their consolidated financial statements for 2020.

The comparative data cover a year, during most of which the business was stifled by the stress of the unforeseen event. The data for the year 2020 reflect the negative consequences of COVID-19 and, at the same time, control of the risks arisen in the operations of the non-financial companies, listed on the BSE.

The empirical studies are for the absolute liquidity, the net revenue from sales and the financial results for 2020 as compared to 2019 of all industrial companies listed on the Bulgarian Stock Exchange. The source of information is the published consolidated financial statements for 2020, containing comparative information for 2019. The financial statements were prepared on the basis of IAS/IFRS, in accordance with legal requirements (Accountancy Act, Art. 34, §2). The non-financial enterprises, listed on the BSE, as of 31 December 2020 are a total of twenty-one from different industries of the economy and are presented in Annex 1 – ***Non-financial enterprises – listed on the Bulgarian Stock Exchange*** (The remaining companies listed on the BSE are from the financial industry and are subject to a separate study.) The data about the empirical study were studied and processed as of 15 July 2021.

Public industrial companies in Bulgaria are systematised by business industry in Table 1.

Table 1

Business industries of non-financial companies listed on the Bulgarian Stock Exchange

Sector under NACE Rev. 2	Number of enterprises
Manufacturing	9
Real estate activities	2
Professional, scientific and technical activities	3
Wholesale and retail trade; repair of motor vehicles and motorcycles	2
Restaurants and mobile food service activities	1
Construction	1
Electricity, gas, steam and air conditioning supply	1
Transportation and storage	1
Mining and quarrying	1

Source: Authors' summaries based on https://www.bse-sofia.bg/ (15.07.2021).

It was established from the review of the database that all the non-financial enterprises registered on the BSE published consolidated financial statements for 2020, certified by registered auditors. One enterprise is in its first year on the BSE and does not participate in the results of the empirical study established by the method of comparison, analysis and aggregation. Subsequent empirical results cover the data from the financial statements of all the enterprises, from which it follows that the extract is 100%.

The following should be done for the attainment of the objective of the study: to present the impact of the Coronavirus pandemic on the financial position of enterprises, in particular on the liquidity, the revenue and the financial results, based on information in their financial statements for a one-year global pandemic, a review of consolidated financial statements and the notes to them, developed as of 31 December 2020 by the listed non-financial enterprises in Bulgaria in two aspects:

- first – are there any announcements about the impact of COVID-19 for 2020;
- second – effects of COVID-19 on the liquidity, the revenue and the financial results for the reporting year and confirmation or rejection of the concept of a "going concern", respectively (Savova, 2021).

The first aspect of the empirical study found that all enterprises in the extract disclosed in a separate section the effects of COVID-19 for 2020. A separate paragraph presents the amendments to IAS/IFRS, effective in 2020, and their application in financial reporting.

With regard to the second aspect, all companies disclosed that the financial statements were prepared on a going concern basis and measures were taken to deal with the effects of the Coronavirus pandemic. To confirm the concept of a "going concern", a comparative analysis was made of the change in the liquidity, revenue and financial results for the two consecutive periods of this extraordinary event: 2020 and 2019. According to an international study, the COVID-19 pandemic has a direct impact on these indicators (Deloitte, 2020).

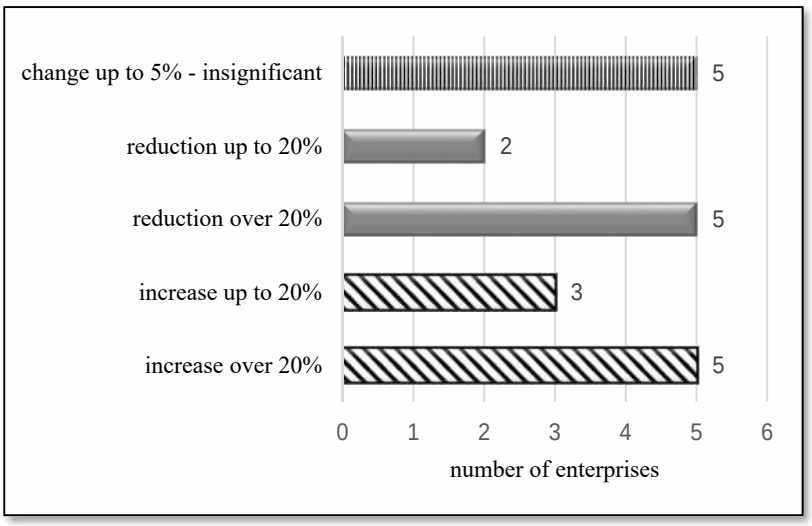
4.1. Empirical study of liquidity

In global economies, the COVID 19 pandemic has a direct effect on liquidity, which increases the risk to corporate profits (Almeida, 2021). A study of the impact of the pandemic on the liquidity of listed companies in 26 countries found that 1/10 of all companies would be illiquid within six months (De Vito, Gomez, 2020). It is logical in the study of liquidity to apply the pessimistic approach to extreme liquidity risk, given the existing uncertainty about the collection of receivables and realisation of sales of products.

The indicator is known as "absolute (instant) liquid ratio". It is defined as the ratio between the amount of cash and cash equivalents and the value of current liabilities with a maturity of up to 12 months. The data are from the statement of financial position. The results for the changes in absolute liquidity (the liquidity) are presented in Figure 2.

The chart shows that there are no essential changes in the liquidity for 5 enterprises (25% of the total number).

Figure 2
Change in liquidity as of 31 December 2020 as compared to 31 December 2019



Source: Authors' summaries based on https://www.bse-sofia.bg/ (15.07.2021).

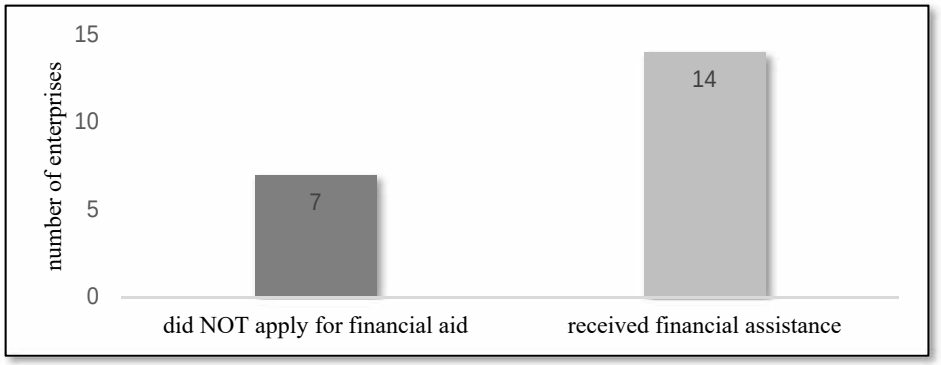
They are from the sectors/industries: Transportation and storage (courier activities); Wholesale (pharmaceutical goods); Professional, scientific and technical activities; Manufacturing (pharmaceutical preparations, Aluminium). Reduced liquidity was established for 7 enterprises (35% of the total number): with 5, the reduction is over 20%, and with 2 – under 20 %. They are from the sectors: Real estate activities, Restaurants and mobile food service activities, Extraction of crude petroleum, Manufacturing (equipment); Wholesale (agricultural products). Eight companies (40% of the total number) are with increased liquidity: with 3 – the increase is under 20%, and with 5 – over 20%. These enterprises are with activity in the sectors: Professional, scientific and technical activities; Distribution of electricity; Construction (roads and motorways); Manufacturing (hydraulic assets and rechargeable batteries). In conditions of economic instability, similar results are subject to in-depth analyses and forecasts.

The conclusion is that for the majority of public non-financial companies listed on the BSE (65% of the total number), liquidity was preserved or increased during a year of a global pandemic, which proves risk management.

The received government grants and assistance exert a positive impact on the liquidity. In 2020, financial resources were provided to the enterprises under national, European and other programmes to overcome the negative effects of the pandemic stress and the business continuity. On the basis of the data in the financial statement, the profit or loss and the other comprehensive income statement and the disclosures attached, the following was established: 14 of the companies (70%) received financial assistance from the state; the other 7 did not apply under programmes to overcome the COVID crisis. The results are presented on Figure 3.

Figure 3

Number of enterprises, which received financial support from the state in 2020



Source: Authors' summaries based on https://www.bse-sofia.bg/ (15.07.2021).

Based on a detailed study of the data, applying the inductive approach, it was found that 11 enterprises, which received financial assistance from the state, are with maintained and increased liquidity. Three of the supported companies are with reduced liquidity and are from the sectors of Restaurants and mobile food service activities; Mining and quarrying (crude oil); Wholesale (agricultural products).

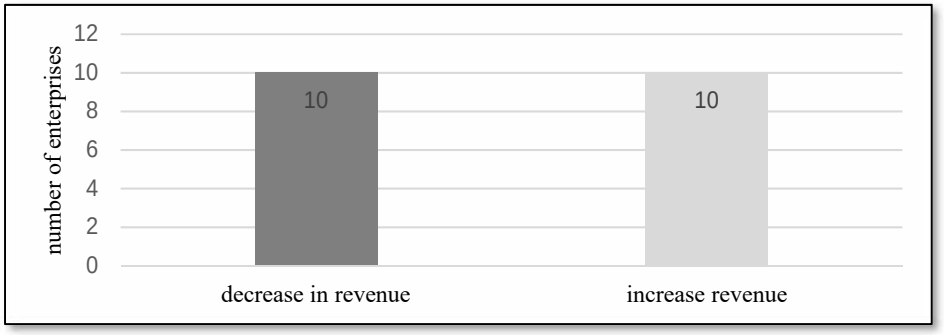
4.2. Empiric study of revenue and financial results

Revenue was studied based on the data in the profit or loss and the other comprehensive income statement and from the notes to the financial statements. The results of the empirical study show that in half of the companies, the revenue increased, and in the others, a decrease was identified. One of the companies with increased revenue announced that the value of revenue decreased as compared to 2019, but more sales were realised as quantity. The reason for this result is the reduced price of raw materials for finished goods, which affects the lower cost and lower selling price, respectively. In the summarised results of the chart, the company is in the indicator of increased revenue. The results for the dynamics of the revenue are presented in Figure 4.

The companies from the sectors: Manufacturing (pharmaceutical preparations), Wholesale and retail trade (pharmaceutical goods), Professional, scientific and technical activities; Distribution of electricity; Transportation and storage (courier activities) are with increased revenue. Enterprises from the sectors: Restaurants and mobile food service activities; Mining and quarrying (crude oil); Wholesale (agricultural products), Manufacturing are with reduced amounts of revenue. The changes in incomes are the same as in revenues.

Figure 4

Change in revenue as of 31 December 2020 as compared to 31 December 2019



Source: Authors' summaries based on https://www.bse-sofia.bg/ (15.07.2021).

Revenue directly affects the size of the **financial results**. In 2020, the financial results were strongly influenced by the changes in the valuation of the assets and the liabilities and beyond. It should not be said that the dynamics in the amounts of revenue and the financial results are identical. Various scenarios are possible in case of extraordinary events, some of which are:

- increase in both the revenue and in the profits;
- increase in the revenue and reduction in the profits;
- reduction in both the revenue and in the profits;
- reduction in the revenue and increase in profits.

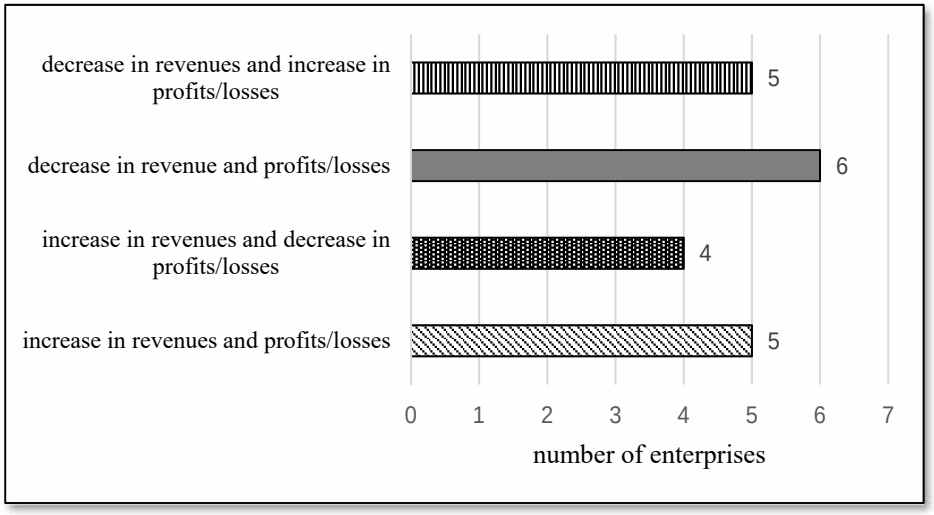
The results of the empirical study of the financial results (profit/loss) are based on the information in the financial statements, the profit or loss and the other comprehensive income statement and the notes to the financial statements. It was found that for half of the companies (10 in number), the financial results increased, and for the other 10 – the financial results decreased. This is the same result as the identified dynamics of the revenues. The availability of all four scenarios was identified through inductive analysis of the financial statements of individual companies:

- For five of the companies, the financial result and the revenue increased in 2020 as compared to 2019. They are from the sectors: Manufacturing (Repair of vessels); Professional, scientific and technical activities (consultancy activities); Wholesale and retail trade (pharmaceutical goods); Distribution of electricity; Transportation and storage (courier activities).
- For six of the companies – the change is decreasing for both indicators. They are from the sectors: Manufacturing (manufacture of accumulators, aluminium); Professional, scientific and technical activities (Activities of head offices); Restaurants and mobile food service activities; Construction (roads and motorways); Mining and quarrying (crude oil).

- Five of the companies generated less revenue, but higher profits. They are from the sectors: Manufacturing (equipment); Wholesale (agricultural products).
- Four companies realised an increase in revenue and a decrease in the financial result. They are from the sectors: Manufacturing (pharmaceutical preparations); Real estate activities; Professional, scientific and technical activities (consultancy activities). The results for the relationship in the dynamics of the financial result (profit/loss) and revenues are presented on Figure 5.

Figure 5

Change in profits/losses and revenues as of 31.12.2020 as compared to 31.12.2019



Source: Authors' summaries based on https://www.bse-sofia.bg/ (15.07.2021).

It is clear from the graph that in conditions of economic unrest, identified dependencies in economic activity are violated under normal conditions.

The summarised results of the empirical studies of the data on liquidity, the net revenue from sales and the financial results of the non-financial public companies in Bulgaria are in the following configurations:

- positive change in the three indicators;
- negative change in the three indicators;
- changes in the three indicators, at least one of which has an increased value.

The companies from the sectors: Professional, scientific and technical activities; Wholesale and retail trade (pharmaceutical goods), Distribution of electricity, Transportation and storage (courier activities), which have increased economic activity, are in the first configuration.

The enterprises operating in Restaurants and mobile food service activities and Mining and quarrying (crude oil), which have the strongest negative effect of COVID-19, are in the second configuration.

The companies from the other business sectors – Manufacturing, Real estate activities, Construction, Wholesale and retail trade. They have been affected by the pandemic crisis, but without significant risk to the going concern principle are in the third configuration.

The summarised data from the empirical study are presented on Table 2.

Table 2

Effects of COVID-19 on the absolute liquidity, net revenue and financial results per business sectors

(+) effect on:	*(-) effect on:*	*(+)/(-) effect on:*
liquidity	*liquidity*	*liquidity*
revenues	*revenues*	*revenues*
financial results	*financial results*	*financial results*
*Professional, scientific and technical activities	*Restaurants and mobile food service activities	*Manufacturing
*Wholesale and retail trade (pharmaceutical goods)	*Mining and quarrying (crude oil)	*Real estate activities
*Distribution of electricity		*Wholesale and retail trade
*Transportation and storage (courier activities)		*Construction

Source: Authors' summaries based on https://www.bse-sofia.bg/ (15.07.2021).

4.3. Empirical study of future performance

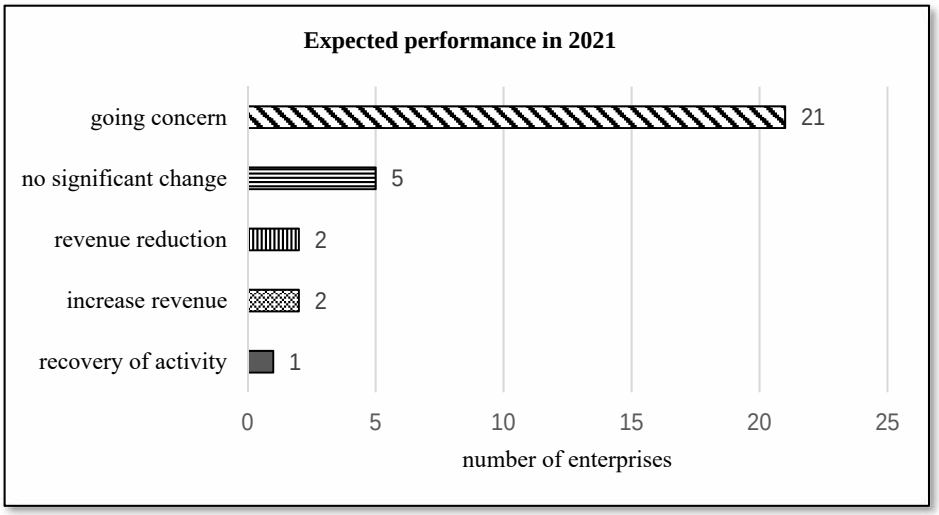
The specifics of the financial statements in conditions of uncertainty is the additional information in the notes to the financial statements for the potential risks in the next twelve months, the expected changes in the operations, the application of the concept of "going concern". It was identified, on the basis of the studied disclosures, that the industrial enterprises registered on the BSE predict effects for the next year in the following aspects:

- reduction in the revenue and the volume of activity – two companies: one from the Wholesale (agricultural products) sector and one from Manufacturing (accumulators);
- increase in the revenue from sales – two companies: one from the Manufacturing (hydraulic pumps) sector and one from the Professional, scientific and technical activities sector;
- without significant change in the activity – five companies: two from the Manufacturing sector (pharmaceutical preparations, nitrogen compounds), one each from the Wholesale and retail trade (pharmaceutical goods) sector, Construction, Transportation and storage (courier activities);
- restoration of the activity – the company from the sector Restaurants and mobile food service activities.

The expected changes in the operations of the non-financial public companies in Bulgaria next year are presented on Figure 6.

Figure 6

Expected performance in 2021



Source: Authors' summaries based on https://www.bse-sofia.bg/ (15.07.2021).

Regardless of the different versions of the effects of COVID-19 on the assets' and liabilities' status of listed non-financial companies in Bulgaria, all of them disclosed that for the next reporting period – 2021, the principle of "going concern" is followed.

5. Results and conclusion

The COVID-19 pandemic affected the economy globally. It has challenged the business for almost two years now. The effects of the resulting uncertainty largely accepted clarity as a qualitative manifestation. Quantitatively, the forecasts are variable. The financial statements prepared on the basis of the International Financial Reporting Standards are the foundation for a true and fair presentation of the effects of COVID-19 for the year of the global pandemic.

The conclusions and the results of the study are in the following directions:

- In an epistemological aspect, the financial statements are a trinity of theoretical accounting knowledge, practical application and legal regulation, which determines them as a reliable information base for identifying the effects of COVID-19 on business.
- Cognitively, the impact of the COVID-19 pandemic has a direct effect on the liquidity, the net revenue from sales, profits and losses. In conditions of uncertainty, the impact of

COVID-19 on the entity's operations, potential risks and adherence to the going concern principle is disclosed in a separate section of the notes to the financial statements.

- In a practical applied aspect, the results of the empirical study are for two consecutive periods of economic instability and show:
  - The most affected by the COVID crisis in Bulgaria are the sectors of hotels and restaurants and oil production, and with positive performance are: trade in pharmaceuticals, electricity distribution, consulting and courier services.
  - Different versions and configurations of the dependencies between the liquidity, the revenue and the financial results in conditions of economic instability for the listed non-financial enterprises in Bulgaria were identified.
  - All non-financial companies listed on the Bulgarian Stock Exchange disclosed in the notes to their financial statements the effects of the Coronavirus pandemic and following the "going concern" assumption.

The effects of COVID-19 on the financial statements of the enterprises for the year of the global pandemic indicate adequate, meaningful and expedient actions for their overcoming and continuing the economic activity.

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Application 1

Non-financial enterprises – issuers on the Bulgarian stock exchange

№	*Company name*	*Sector under NACE Rev. 2*	*Stock index*
1	SOPHARMA AD-SOFIA	Manufacturing	SOFIX BGBX40 BGTR30
2	M+S HYDRAULIC AD-KAZANLAK	Manufacturing	SOFIX BGBX40 BGTR30
3	MONBAT AD-SOFIA	Manufacturing	SOFIX; BGBX40 BGTR30
4	TCHAIKAPHARMA HIGH QUALITY MEDICINES AD	Manufacturing	BGBX40
5	ALCOMET AD-SHUMEN	Manufacturing	BGBX40
6	NEOCHIM AD-DIMITROVGRAD	Manufacturing	BGBX40
7	HYDRAULIC ELEMENTS AND SYSTEMS AD-YAMBOL	Manufacturing	BGBX40
8	ODESSOS SHIPREPAIR YARD AD-VARNA	Manufacturing	BGBX40
9	KORADO BULGARIA AD-STRAZHITSA	Manufacturing	BGBX40
10	BRAVO PROPERTY FUND REIT-SOFIA	Real estate activities	BGBX40
11	VELGRAF ASSET MANAGEMENT AD-SOFIA	Real estate activities	BGTR30
12	AGRIA GROUP HOLDING AD-VARNA	Professional, scientific and technical activities	BGBX40
13	TELELINK BUSINESS SERVICES GROUP AD-SOFIA	Professional, scientific and technical activities	SOFIX BGBX40 BGTR30
14	SIRMA GROUP HOLDING JSC-SOFIA	Professional, scientific and technical activities	BGBX40 BGTR30
15	SOPHARMA TRADING AD-SOFIA	Wholesale and retail trade; repair of motor vehicles and motorcycles	BGBX40 BGTR30
16	ZARNENI HRANI BULGARIA AD-SOFIA	Wholesale and retail trade; repair of motor vehicles and motorcycles	BGBX40
17	ALBENA AD- ALBENA	Restaurants and mobile food service activities	SOFIX BGBX40 BGTR30
18	TRACE GROUP HOLD AD-SOFIA	Construction	BGBX40 BGTR30
19	CEZ DISTRIBUTION BULGARIA AD-SOFIA	Electricity,gas,steam and air conditioning supply	BGBX40 BGTR30
20	SPEEDY AD-SOFIA	Transportation and storage	BGBX40
21	OIL AND GAS EXPLORATION AND PRODUCTION AD-SOFIA	Mining and quarrying	BGBX40

Source: Authors' summaries based on https://www.bse-sofia.bg/ (15.07.2021).

ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES

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THE IMPACT OF GENDER AND AGE ON EARNINGS MANAGEMENT PRACTICES OF PUBLIC ENTERPRISES – A CASE STUDY OF BELGRADE[4]

The goal of this study is to investigate whether the gender and age of the director, the supervisory board chairman and other supervisory board members influence earnings management practices in public enterprises established by the Serbian capital city. We have found that the age of the directors and the age and gender of the board members appointed by the local authority are statistically insignificantly associated with earnings management practices. But the study reveals a huge gender inequality concerning the directors and supervisory board members appointed by the local authority and opens up a debate on whether supervisory board members are sufficiently qualified for the task assigned to them by Law. As a result of this research, we suggest several inputs for the ongoing public administration reform.
Keywords: earnings management; gender; age; supervisory board; public enterprises; Serbia
JEL: M41; M48; M14; G30; C33

1. Introduction

Despite a long history of gender issues in the legislation of today's European region, which dates back even to Ancient Roman times (Bauman, 2015; Vujović, 2017), the gender issue has been a hot topic in the EU, not only over the last decade but is also one of the priorities of the EU Commission for the coming years (European Commission, Legislative train, 11.2020). Namely, according to the new EU Gender Equality Strategy 2020-2025, unblocking the 'Women on Boards' Directive Proposal has been declared as one of the

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priorities. Besides the reason to fight against inequalities, prescribing gender quota on board of directors has also been strongly supported by economic arguments that stem from the conviction of the advantage of gender-balanced boards. This conviction stems not only from the belief that women improve the decision-making process but also as a consequence of seeing women as more ethical than men. It has been usually considered that women are more risk-averse than men, have a long-term perspective, and are more ethical, diligent, compassionate, inclusive, and stakeholder-oriented (Kirsch, 2018). At the same time, it has been widely argued that risk-aversity, ethicality, conservatism are also features of older CEOs (Pavlović et al., 2019a).

Although neglected for a long time, a few recently published studies link the gender and age issues in corporate governance matters. Most of them were initiated by the introduction of mandatory gender quotas on the boards of directors of certain states, which opened the question of whether the introduction of mandatory quotas would result in the recruitment of younger, less experienced and less qualified female directors than the men they replace and, consequently, will lead to a decrease in the value of the company and its profitability (Matsa, Miller, 2013; Ahern, Dittmar, 2012; Schwartz-Ziv, 2017; Kirsch, 2018; Solal, Snellman, 2019). On the other hand, Pavlović et al. (2019a) show that female board members are significantly younger than male members even when women are not recruited on board due to the introduction of gender quotas.

This study aims to investigate whether the gender and age of the director, the supervisory board chairman and other supervisory board members influence earnings management practices in public enterprises of the Serbian capital city. This study's results could be important insight useful for the public administration reform (PAR) in terms of improving gender equality in local public enterprises in Serbia, as PAR is one of the main challenges in Serbia's EU integration process.

The 'Women on Boards'Directive Proposal prescribes gender quota on board of directors of public companies, but not on public enterprises' supervisory board. While many research explored the economic arguments for introducing gender quota, including the effect of women's participation on a company's performance, earnings management and fraudulent reporting, those research were not conducted in the sector of public enterprises.

A survey on the impact of women on the supervisory board of public enterprises on performance, as well as the impact of appointment women on the position of director or supervisory board chairman, would face a huge problem of results interpretation due to the hybrid goals of public enterprises (regular satisfaction of the consumer's needs and earning a profit) which are often in conflict (Sobol, 2016; Liechti, Finger, 2019). On the contrary, research on the impact of women appointed at the position of director and as a supervisory board member, as well as the impact of the president's gender on earnings management practices, could be done. The situation is unchanged with regard to their age. So, some arguments for introducing gender quota on supervisory boards of public enterprises could be supported or rejected by this research.

The most important role of financial reports is to effectively communicate financial information to outsiders in a timely and credible manner (FASB, 1984; Marai, Pavlović, 2013, p. 39). It has been argued that managers have both the ability and the incentive to

manage reported earnings in order to increase or decrease current period earnings relative to their 'unmanaged' level (Marai, Pavlović, 2013, p. 39). Healy and Wahlen (1999) point out the opportunistic perspective of earnings management, which is to mislead financial information users (Marai, Pavlović, 2013, p. 39). Either stakeholders are misled about the underlying economic performance of the company or otherwise management influence the contractual outcomes that depend on reported accounting numbers (Healy, Wahlen, 1999; Marai, Pavlović, 2013, p. 39). Thus, earnings management erodes public confidence in the financial reporting process (Soon, Wee, 2011). Thiruvadi and Huang (2011, p. 495) underline that the regulators, legislators, and policymakers are very concerned with the issue of earnings management, and therefore there is a need to ensure public confidence in the reporting of accounting information. But while earnings management is widely discussed in the corporate world, this research is almost non-existent in the public sector. The consequences of reducing the quality of the financial reporting process in public companies and public enterprises are not equal. Reducing the quality of the financial reporting process has its political dimension as well. The practice of earnings management in public enterprises further undermines public confidence in public enterprises and local authorities as well, which are often not very high, particularly in transitional and emerging economies. Del Bo and Florio (2012) pointed out that different strands of theoretical research have questioned the confidence in planning and policy adoption in public enterprises.

Bearing in mind that earnings management practices reduce the reliability of the financial reports, and, therefore, can have a huge impact on several important issues concerning the director and the supervisory board members of the public enterprises, we investigate if there is an association between gender diversity of the supervisory board members and earnings management, an association between the director's age and earnings management, and an association between the age and gender of the chairman of the supervisory board and earnings management.

2. A Few Words on the Legal Aspect

Public enterprises are significantly different from other business entities in many ways. In the context of our research, besides the fact that public enterprises, according to the Serbian Law on Public Enterprises (articles 4, 58), are faced with conflicting goals (ensuring the continuous performance of activities of general interest and regular satisfaction of the consumer's needs, and earning a profit in order to fill the budget), the fact that the majority of the supervisory board members, as well as the director, are appointed by the local authority, while only one member of the supervisory board is elected by the employees (Law on Public Enterprises), makes the crucial difference.

According to the Serbian Law on Public Enterprises ("Official Gazette of the RS", No. 15/2016 and 88/2019), public enterprises are governed by the supervisory board and the director (Article 15). Among other tasks, the supervisory board supervises the work of the director, discusses financial reporting matters and external audit reports and brings decisions of adopting financial reports (Article 17, 5-6).

According to Article 29 of the Serbian Law on Public Enterprises, the director and the executive director may be entitled to incentives, and the act on payment of incentives is enacted by the supervisory board. The former Law on Public enterprises ("Official Gazette of the RS", No. 119/12, 116/13 and 44/14) prescribes that the director and the executive director may be entitled to incentives in the event that a public company operates with positive business results (Artice 29). The new Law on Public Enterprises leaves the Government to determine the conditions and criteria for determining and the amount of stimulation by a sub-legal act. But the financial result is not important for the management of public enterprises just for getting incentives, but as well for keeping positions. As Article 49 prescribes, "the director is dismissed in the event of a significant deviation from the achievement of the basic business objective of the public company, i.e. from the business plan of the public company". Therefore, the supervisory board not only „supervises the work of the director, discusses financial reporting matters and external audit reports and brings decision of adopting financial reports (Article 17, 5-6)" and enact incentives for the director and executive director depending on the reported profit, but as well govern the public enterprises with the director (Article 15). The reported profit is the information basis for numerous decisions in public enterprises. These decisions are difficult to be made when managers are challenged to manage conflicting goals. Therefore, the earnings management practice of public enterprises needs to be taken into consideration, because this practice could influence decisions about reported profit and consequently its distribution.

Contrary to public companies and public enterprises established by the Republic of Serbia, which, according to the Serbian Law on Public Enterprises ("Official Gazette of the RS", No. 15/2016 and 88/2019), have to establish an audit committee (Article 55), public enterprises established by the local authority do not. That fact additionally increases the importance of the supervisory board in public enterprises established by the local authority in which the supervisory board de facto takes this role. Thiruvadi and Huang (2011) find consistent evidence to show that the presence of a female director on the audit committee constrains earnings management and also acts as an influencing factor in overcoming the glass ceiling effect and therefore recommend the appointment of more female members on the board.

3. Literature Overview

The crisis has always increased the number of articles dealing with earnings management, fraudulent reporting and insolvency, and it seems that since the global crises of the first decade of the third millennium, these issues have received increasing attention (Pavlović, Knežević, Cunha Callado, 2021).

Most of the researchers are trying to find patterns when and why earnings management occurs and which factors positively and negatively influenced the earnings management practices. But, the earnings management and fraudulent reporting issues did not get the expected attention in the public sector. Just a few of the studies investigated the earnings management practices in the public sector. Stalebrink (2007) investigated if Swedish municipalities use discretion associated with the accounting for depreciation and asset write-offs for purposes of reporting small surpluses across accounting periods, Ferreira et al. (2013), analysed

whether local politicians in Portuguese municipalities, aiming to demonstrate their high level of competence and skills, engage in earnings management in such a way as to ensure that earnings are positive but close to zero, Arcas and Martí (2016) investigated financial performance adjustment in English local governments, Hodges (2018) investigate how might harmonisation influence the future prevalence of public sector creative accounting, while recently Beck (2018) checked the earnings management practices motivated by municipal bond issues. Numerous studies support the widespread hypothesis that women are more ethical than men showing that an increase in the participation of women on boards of directors results in higher ethical standards and therefore results in fewer earnings management practices (Heminway, 2007; Peni, Vähämaa, 2010; Barua et al., 2010; Srinidhi et al., 2011; Thiruvadi, Huang, 2011; Gavious et al., 2012; Abbott et al., 2012; Arun et al., 2015; Sun et al., 2019). A widespread hypothesis is also that older people are more ethical, conservative and more risk-averse than the younger (Pavlović et al., 2019b).

On the other hand, some studies do not support the hypothesis that men and younger people are more likely to practice earnings management (Sun et al., 2011; Hili, Affes, 2012; Shawver, Clements, 2015), while Zalata et al. (2019) discovered that the magnitude of earnings management practices is significantly higher in firms with female CEOs than in those with male CEOs. The only studies on gender and age effect on earnings management in Serbia show that neither women's presence (Pavlović et al., 2018) on board nor the age of board members (Pavlović et al., 2019b) affects earnings management.

Although it has been well known for some time that demographic and personal characteristics affect earnings management practices, especially gender and age, this issue has never been raised in the municipal sector. However, it seems that numerous gender and age stereotypes are present between scholars as well. From the initial attitude that female and older CEO members contribute to more ethical behaviour and hence boards with these members are less engaged in earnings management and fraudulent reporting, today we know that national institutional environments, cultural factors, regulatory, economic and corporate governance institutions could not only explain female board participation across countries (Terjesen, Singh, 2008) but could as well partially explain the behaviour of board members. The study conducted by Kyaw et al. (2015) highlights the importance of country factors, by revealing that a gender diverse board mitigates earnings management only in countries where gender equality is high.

It is also known that female participation on boards (Brieger et al., 2019) could partially be explained by sectorial variation and the expectation that the board member behaviour could be influenced by sector characteristics is a reasonable assumption. Today we also know the effect of 'critical mass' which has been recently confirmed in several studies exploring the effect of women's participation in boards of directors (Amorelli, García-Sánchez, 2020; Schwartz-Ziv, 2017), as well as the "glass cliff" phenomenon (Ryan, Haslam, 2005). Thus, studies exploring women's participation on boards should be conducted very carefully to not come out with premature conclusions.

This study brings a few important novelties. Despite, earnings management is one of the most researched topics in the accounting field today, this is the first study exploring earning management practices of public enterprises. Some aspects of gender issues of South-East

European public enterprises have been explored (Dragičević, Mihić, 2020; Maskarinec, 2019) as well as some studies have been done on female representation at different administrative levels (Kjaer, 2019), but this is the first study linking the issues of gender and age not only in matters of earnings management practices of public enterprises but also of all gender issues of public entities in South-East Europe. The result of this study could be important as well for public policies of appointing supervisory board members and directors in public enterprises.

4. Data and Methodology

We investigated if the gender and age of the supervisory board members and the gender and age of the chairman affect earnings management of public enterprises owned by the city of Belgrade. We also examined whether the age of the director affects earnings management. Research on the gender effect of the director on earnings management could not be conducted as no woman was appointed director of Belgrade's public enterprises in the covered period. Bearing in mind that the majority of board members are appointed by the local authority (2 members), while a minority represents the employees (1 member), we investigated whether certain patterns could be found on this basis.

We posted the following research questions:

R1: Is there an association between the gender diversity of the supervisory board members and earnings management?

R2: Is there an association between the director's age and earnings management?

R3: Is there an association between the age and gender of the chairman of the supervisory board and earnings management?

Today, the city of Belgrade own 21 public enterprises of which 13 enterprises are public utility enterprises and public 8 enterprises are not utility enterprises. One of them was established in 2018, so it could not be included in the sample, and we excluded another one for being insolvent during the whole observed period. For calculating earnings management, we used data from the financial reports of those entities covering the period from 2015 to 2018. Therefore, we calculated earnings management for the following years: 2016, 2017, and 2018. Due to the lack of data (some enterprises have been founded in the observed period), 15 public enterprises were analysed for the year 2016 (4 enterprises are excluded), 17 for the year 2017 (2 enterprises are excluded), while all 19 public enterprises were analysed for the year 2018.

Since some directors and supervisory board members have changed during the observed period, and since the ages of the directors and supervisory board members have changed every year, we have considered each supervisory board for each year as a separate item. When the people in charge changed during a year, we took over the person who was on call at the end of the year because earnings management decisions are mostly undertaken at the end of the year. Two of the three members of the supervisory boards and the directors are

appointed by the Belgrade city assembly. We used the Sig (2-Tailed) test, and the data are analysed with the SPSS software package version 23.0.

This research has some limitations. First, there is a small number of public enterprises established by the city of Belgrade, which makes our sample small. Second, we considered gender identity on the basis of the sex of directors and supervisory board members, while an increasing number of papers argue, from different perspectives, that a distinction should be made between gender identity and sex.

5. Research

5.1. Identifying the appropriate method for earnings management detection

Exploring factors that influence earnings management suppose firstly the identification of the appropriate method for earnings management detection (Jones, 1991; Dechow et al., 1995; Healy, Wahlen, 1999; Marai, Pavlović, 2014; Pavlović et al., 2018; Marai et al., 2020; Blazek et al., 2020; Durana et al., 2020). This is done on the sample of public enterprises which data was available for the period 2015-2018. This includes 18 public enterprises, which gives a sample of 49 observations per variable. As Pavlović et al. (2018) did, in order to find the appropriate earnings management detection method for our sample, we tested the:

(1) Jones Model (ACC=βi 1/TA -1 + β1i ΔSALES+β2i PPE + €it)

(2) Modified Jones Model (ACC=βi 1/TA -1 + β1i ΔSALES-ΔRECEIV+β2i PPE+€it)

(3) Performance ADJ Jones Model (ACC=βi 1/TA -1 + β1i ΔSALES-ΔRECEIV+β2i PPE +PERFORMANCE €it)

(4) Modified Jones Panel Data (ACC=βi 1/TA -1 + β1i ΔSALES-ΔRECEIV+β2i PPE+€it)

(5) Performance ADJ Jones Panel Data (ACC=βi 1/TA -1 + β1i ΔSALES-ΔRECEIV+β2i PPE+PERFORMANCE €it)

where:

ACC = total accruals

TA = total assets at the end of year t1

Δ SALES = the change in sales from year t1 to t

Δ RECEIV = the change in receivables from year t1 to t

PPE = gross property, plant, and equipment in year t for firm i.

€it = error term in year t for firm i.

Table 1

Modified Jones Model Panel Data

MODIFIED JONS Model

ACC = a 1 1/TA -1 + a 2 ΔSALES-ΔRECEIV + a 3 PPE + e

```
. xtreg taccru toassets  charevrec ppe, re
Random-effects GLS regression        Number of obs      =        51
Group variable: id                   Number of groups   =        19
R-sq:  within  = 0.2328              Obs per group: min =         1
       between = 0.0003                             avg =       2.7
       overall = 0.0010                             max =         3
Wald chi2(3)      =      1.20
corr(u_i, X)   = 0 (assumed)         Prob > chi2        =    0.7533
------------------------------------------------------------------------------
     taccru |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------+----------------------------------------------------------------
   toassets |   16977.4   16936.45     1.00   0.316    -16217.42    50172.23
  charevrec |  -.0031523   .0137011    -0.23   0.818    -.0300059    .0237013
        ppe |   .1067795   .2200636     0.49   0.628    -.3245371    .5380962
      _cons |  -.2085354   .1694719    -1.23   0.219    -.5406942    .1236234
------------+----------------------------------------------------------------
    sigma_u |  .27601284
    sigma_e |  .07466552
        rho |  .93181172   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

MODJONS PANAL DATA

```
. xtreg acc tas ravrcv ppe, re
Random-effects GLS regression                Number of obs     =        49
Group variable: company id                   Number of groups  =        18

R-sq:  within  = 0.0029                      Obs per group: min =         1
       between = 0.0765                                     avg =       2.7
       overall = 0.0160                                     max =         3
                                             Wald chi2(3)      =      0.45
corr(u_i, X)   = 0 (assumed)                 Prob > chi2       =    0.9288

------------------------------------------------------------------------------
         acc |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         tas |  -1599.478   5596.929    -0.29   0.775    -12569.26     9370.3
      ravrcv |   .0030849   .0052281     0.59   0.555    -.0071619    .0133318
         ppe |   .0523164   .1088515     0.48   0.631    -.1610286    .2656614
       _cons |  -.0791163   .0763867    -1.04   0.300    -.2288314    .0705989
-------------+----------------------------------------------------------------
     sigma_u |  .08518512
     sigma_e |  .0755244
         rho |  .55989652   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

ACC = a 0 1/TA -1 + a 1 ΔSALES-ΔRECEIV + a 2 PPE + e

Source: Authors' own calculations.

Contrary to Pavlović et al. (2018) and similarly with Marai et al. (2020) who also explored earnings management of entities in Serbia, we find that the Modified Jones Model developed by Dechow et al. (1995) is the most appropriate one for Belgrade's public enterprises.

5.2. Identifying gender and age effect on earnings management

Table 2

Descriptive statistics

Table. 2.1

Entity sizes

		Frequency	Percent	Cumulative Percent
Valid	Micro	1	5.3	5.3
	Small	5	26.3	31.6
	Medium	6	31.6	63.2
	Large	7	36.8	100.0
	Total	18	100.0	

Source: Authors' own calculations.

Table 2.1 shows the sizes of public enterprises. We can see that the large and medium-sized enterprises form the large majority of the sample, while only one enterprise is classified as a micro-entity.

Table 2.2

Gender and age of director and supervisory board members

No	Director – age/gender			Board Chairman – age/gender			Board member appointed by the local authority – age/gender			Board member delegated by the employees – age/gender			Average age of board members without the chairman			% Woman on board		
	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018
1		59	60		48♀	49♀		47	48		53♀	54♀		50	51		0.67	0.67
2	63	64	65	64	65	66	62	63♀	64♀	51	52	53	56.5	57.5	58.5	0	0.33	0.33
3	42	43	44	49	50	51	56♀	57♀	58♀	44	45	46	50	51	52	0.33	0.33	0.33
4	49	50	51	39	40	41	58	59	60	46♀	47♀	48♀	52	53	54	0.33	0.33	0.33
5	44	45	46	58	59	60	35	36	37	39	39	40	37	37.5	38.5	0	0	0
6		39	40		66	67		37	38		36♀	37♀		36.5	37.5		0.33	0.33
7			54			50♀			60			53♀			56.5			0.67
8	53	54	55	54♀	52	53	51	39	40	43	63	64	47	51	52	0.33	0	0
9	33	34	35	38	39	40	55	43	44	59♀	64	51♀	57	53.5	47.5	0.33	0	0.33
10	56	57	58	66	67	68	62	69	70	45	61	62	53.5	65	66	0	0	0
11			58			37			49			39			44			0.67
12	49	40	41	39	40	41	40	55	56	34	35	36	37	45	46	0	0	0
13	43	44	44	49	50	51	64	65	66	61♀	62♀	63♀	62.5	63.5	64.5	0.33	0.33	0.33
14	62	63	39	35	36	37	62	63	64	63	64	48♀	62.5	63.5	56	0	0	0.33
15	47	48	31	49	50	41	42	43	39♀	37	49	50	39.5	46	44.5	0	0	0.33
16	53	54	50	46	41♀	42♀	68	69	70	59♀	47	48	63.5	58	59	0.33	0.33	0.33
17	39	40	33	67	68	69	54	41	42	44♀	45♀	46♀	49	43	44	0.33	0.33	0.33
18	34	35	36	52	39	40	61♀	62♀	63♀	34	35	39♀	47.5	48.5	51	0.33	0.33	0.67
19	43	40	41	39	40	45	70	71	44	42	43	27	56	57	35.5	0	0	0
N	15	17	19	15	17	19	15	17	19	15	17	19	15	17	19	15	17	19
Mean	47.33	47.59	46.37	49.60	50.00	49.89	56.00	54.06	53.26	46.73	49.41	47.58	51.37	51.74	50.42	0.18	0.19	0.31
SD	8.70	9.22	9.70	10.24	10.85	10.79	9.88	11.93	11.21	9.38	10.05	9.49	8.46	8.27	8.41	0.16	0.20	0.23
Max	63	64	65	67	68	69	70	*max* →71	70	63	64	64	63.50	65.00	66.00	0.33	0.67	0.67
Min	33	34	31	35	36	37	35	36	37	34	35	*min* →27	37.00	36.50	35.50	0.00	0.00	0.00

The symbol ♀ is used for women.
Source: Authors' own calculations.

Table 2.2 shows that no woman is appointed as director, while in the entire observed period, in only three enterprises, a woman was elected as chairman of the supervisory board. Table 2.2 also shows that the large majority of women on boards are board members delegated by the employees.

Table 3

Set – Correlation between selected variables and earnings management practices

Table 3.1

Correlation between the gender of the board chairman, board member appointed by the local authority and Board member delegated by the employees with earnings management practices

Variable/Pearson product moment results	2016	2017	2018
Chairman of the Board			
Pearson Correlation	0.007	0.023	0.019
Sig. (2-tailed)	0.981	0.932	0.939
N	15	17	19
Board member appointed by the local authority			
Pearson Correlation	-0.151	-0.169	-0.233
Sig. (2-tailed)	0.592	0.518	0.337
N	15	17	19
Board member delegated by the employees			
Pearson Correlation	-0.176	-0.238	-0.193
Sig. (2-tailed)	0.530	0.357	0.429
N	15	17	19
Woman % on the board			
Pearson Correlation	-0.266	-0.273	-0.332
Sig. (2-tailed)	0.338	0.288	0.165
N	15	17	19

Source: Authors' own calculations.

Table 3.1 shows that the percentage of women on boards, whether appointed by the local authority or delegated by the employees, is linked to lower earnings management practices, but that the relationship is statistically insignificant. Namely, a weak negative statistically insignificant correlation is found between the percentage of women on board and earnings management practices over the entire period ($p = 0.338$, $\rho = -0.266$ for the 2016; $p = 0.288$, $\rho = -0.273$ for the 2017; $p = 0.165$, $\rho = -0.332$ for the 2018). As expected, no correlation between women appointed as chairman of the board and earnings management practices could be found due to a negligible number of women elected as chairman.

Table 3.2. shows a statistically insignificant negligible negative correlation between the age of the director and earnings management practices over the entire period ($p=0.648$, $\rho=-0.129$ for the 2016; $p = 0.556$, $\rho = -0.154$ for the 2017; $p = 0.931$, $\rho = -0.021$ for the 2018).

The results show a week negative correlation between the age of the supervisory board chairman and earnings management practices for the year 2016 ($p = 0.206$, $\rho = -0.346$) and 2017 ($p = 0.214$, $\rho = -0.317$) and a negligible negative correlation for the year 2018 ($p = 0.465$, $\rho = -0.179$), but the correlation is statistically insignificant for the entire period.

Table 3.2

Correlation between the age of the board chairman, director, board member appointed by the local authority and Board member delegated by the employees with earnings management practices

Variable/Pearson product moment results	2016	2017	2018
Supervisory Board Chairman			
Pearson Correlation	-0.346	-0.317	-0.179
Sig. (2-tailed)	0.206	0.214	0.465
N	15	17	19
Director			
Pearson Correlation	-0.129	-0.154	-0.021
Sig. (2-tailed)	0.648	0.556	0.931
N	15	17	19
Board member delegated by the employees			
Pearson Correlation	0.349	0.353	-0.148
Sig. (2-tailed)	0.202	0.165	0.545
N	15	17	19
Board members appointed by the local authority			
Pearson Correlation	-0.069	-0.060	-0.402
Sig. (2-tailed)	0.806	0.820	0.088
N	15	17	19

Source: Authors' own calculations.

The results also show a negligible negative correlation between the age of the board member appointed by the local authority and earnings management practices for the years 2016 ($p = 0.806$, $\rho = -0.069$) and 2017 ($p = 0.820$, $\rho = -0.060$) and a weak negative correlation for the year 2018 ($p = 0.088$, $\rho = -0.402$), but the correlation is statistically insignificant for the entire period.

On the other hand, the results show a week positive correlation between the age of the board member elected by the employees and earnings management practices for the year 2016 ($p = 0.202$, $\rho = 0.349$) and 2017 ($p = 0.165$, $\rho = 0.353$) and a negligible negative correlation for the year 2018 ($p = 0.545$, $\rho = -0.148$), but the correlation is statistically insignificant for the entire period.

Table 3.3

Correlation between earnings management practices and entity size

Entity size		
2016	Pearson Correlation	-0.713**
	Sig. (2-tailed)	0.003
	N	15
2017	Pearson Correlation	-0.584*
	Sig. (2-tailed)	0.014
	N	17
2018	Pearson Correlation	-0.551*
	Sig. (2-tailed)	0.014
	N	19

** correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Source: Authors' own calculations

Table 3.3 shows a medium-strong statistically significant relationship between the entity size and earnings management practices, in the sense that management of smaller entities is more engaged in earnings management than the management of the largest ones. For the year 2016, this relationship is highly statistically significant ($p = 0.003$, $\rho = -0.713$), while for the year 2017 ($p = 0.014$, $\rho = -0.584$) and the year 2018 ($p = 0.014$, $\rho = -0.551$) this relationship is statistically significant.

6. Discussion

Contrary to the finding of Brieger et al. (2019, p. 495) that board gender diversity is higher in the public and the non-profit sector than in the for-profit sector, our study shows that the public sector observed at the local units level can be described as non-gender-sensitive. Namely, results show that no woman was appointed as a director of public enterprises of Belgrade City. Over the observed period, just three women were holding the chairman position of the supervisory board, while at the end of the observed period, these positions were occupied by only two women. These facts seem to be very important. Namely, it seems that the private sector in Serbia is more gender-sensitive (Knežević et al., 2017; Knežević, Pavlović, Bojičić, 2021; Knežević, Pavlović, Arıç, 2021) than the public service observed at the level of local units, particularly having in mind that the vast majority of women on boards were delegated by the employees.

Thus, it was not possible to analyse the effect of the director's gender on earnings management. We found a weak relationship between the percentage of a woman on boards and engaging in earnings management, in the sense that more woman on supervisory boards leads to fewer earnings management practices, but this relationship is not statistically significant. A negative relationship between earnings management and woman's participation on boards over the entire period is confirmed as well when women were appointed by the local authority or delegated by the employees. Keeping in mind that the correlation is weak and not statistically significant, our study supports findings that women on board do not contribute to financial reporting quality, at least in public enterprises. But these results could be interpreted as well through the 'critical mass' theory having in mind that women appointed by the local authority as director as well as supervisory board members, particularly board chairmen, made a huge minority. It is not likely that women delegated from the employees vote differently from the other supervisory board members who are representing the local authority, of whom one is elected chairman, moreover if they did, they would not be able to change the result of the vote. But it could be questioned as well if a male supervisory board member delegated from the employees would vote differently from the other supervisory board members and the director's attitude having in mind that they are all appointed by the local authority, and which position in the enterprise is determined by their attitude toward him. Of course, it could be questioned as well if the supervisory board members, as well as the director, are actually the decision makers having in mind that all of them could be highly influenced by the local authority. Corruption is a well-researched topic, in particular within the transition economies perceived as having high levels of corruption, frequently attributed to the legacy of the communist system (Botrić, 2020, p. 700). The score of the Corruption Perceptions Index (CPI) 38 that Serbia had in 2020 (Transparency International, 2021), which means that the state is perceived as a more corrupt

state, leaves room for doubt that board members and directors of public enterprises are not really the decision-makers. The recent arrest of the mayor of the largest Belgrade municipality, together with the head of the municipality's inspection services and six inspectors for corruption, reveals that corrupt activities are present in the city administration.

It should be noticed as well that the huge majority of the supervisory board members do not have the knowledge to read and understand the financial statements, particularly if the earnings management practices occurred. According to the Law on Public Enterprises ("Official Gazette of the RS", No. 15/2016 and 88/2019), among other criteria for membership in the supervisory board, the knowledge of corporate governance or finance is prescribed. Therefore, the members of the supervisory board of public enterprises should have a degree in Law or economics or take a course in corporate governance if they have graduated from another faculty. The websites of the public enterprises reveal that some supervisory board members appointed by the local authority are engineers or medical science graduates. Therefore, knowledge of accounting is not required. Certainly, no graduate economist in Serbia knows the earnings management technics and therefore could be suspicious concerning earnings management, while graduate law students, as well as others who attended a course in corporate governance, could even understand what earnings management is. When it is known that the vast majority of the supervisory board members do not know, not only the rules on recognition, measurement, and reporting of the assets and liabilities, but as well the basic accounting principles, it is not clear how the Supervisory Board could supervise the work of the director, discusses financial reporting matters and external audit reports, and brings decision of adopting financial reports, as required by Article 17 (5-6) of the Law. Bearing in mind that all supervisory board members graduated before the adoption of the fair value basis, as well as since they graduated, many IFRSs have been amended, even those who have graduated in economics cannot really understand today's financial reports. The introduction of the fair value in the financial reports is particularly important due that this change could bring an unrealised gain in the income statement, which has its implication on the profit distribution decision, which is also the responsibility of the supervisory board. The situation is further aggravated by the fact that according to the Law, public enterprises established by the local authority do not have an audit committee.

It is not clear whether gender diversity reduces fraudulent reporting and improves firm performance. Therefore, claiming that more women appointed as directors and supervisory board members will have an economic benefit on public enterprises cannot be taken for granted. But, it is absolutely clear that a supervisory board member without knowledge of accounting could not do the entrusted job properly.

Therefore, we indicate that it should be considered in the Public Administration Reform (PAR) to include a standard requiring members of the Supervisory Board to be certified public accountants. From the economic point of view, credibility should be the primary request for being a board member, while credibility is determined by two critical elements: competence and trustworthiness (Chng et al., 2018). Thus, supervisory board members should be appointed because of their knowledge, skills, and abilities, as well as their ethical behaviour. Being a certified public accountant signifies not only having knowledge of accounting and finance but as well expertise in wider business and management issues. Due that the accounting profession is founded on the confidence in the ethical behaviour of

accountants, and therefore ethical issues play a fundamental role in accounting education, it could be expected that certified public accountants are more ethical than others. The fact that they can lose their hard-earned license due to unethical behaviour makes this even more likely. This request should contribute to having persons with more integrity on boards, which is in line with the current focus of attention on individuals, i.e. the current process of replacing the model of „institutional integrity" with a public management concept focus on individual integrity (Demmke, 2020).

As a consequence that the vast majority of certified public accountants in Serbia are women (according to the register of the Serbian Association of Accountants and Auditors – SAAA in the period from 2010 to 2019, 81.76% of persons who have obtained a certificate in accounting are women) prescribing the possession of an accounting certificate for membership on a supervisory board, would probably per se bring more gender equality in the society. Our state that there is a need of including more women on supervisory boards as representatives of the local authority is based not on the 'gender hypothesis' according to which women are 'more ethical' than men because it is doubtful that this is true (Bampton, Maclagan, 2009), but on a fact that women make the vast minority of persons appointed by the local authority despite the fact that the majority of person graduated in Economics or Law are women and the fact that women's underrepresentation could not be attributed to the "biological trap".

Even if the suggestion of prescribing a criterion of being a certified public accountant for being appointed as supervisory board members, history teaches us that it is necessary to prescribe a gender quota as part of the Public Administration Reform (PAR) if we want to fight against gender inequalities. Namely, although accounting could be considered a traditional profession of women in Serbia for decades, the women elected as delegates in the Serbian accounting association were a distinct minority (Škobić, 2015, p. 147). This gender quota should only be prescribed for supervisory board members appointed by the local authority, and it should be 50%. There are several reasons for this. First, our results confirm that there is no gender inequality when employees elect their representative to the supervisory board. In addition to this, it might not be possible to prescribe a gender quota given that the law prescribes only one board member elected by the employees. Second, our results confirm that gender inequality is present at the local authority level. Therefore, we strongly believe that one of the two members of the supervisory board appointed by the local authority should be a woman. In that case, at least 33% of the board members would be women, which is very close to the gender quota prescribed by the 'Women on Boards'Directive Proposal.

An adequate representation of women on supervisory boards of public enterprises is of great importance, not only in order to combat gender inequalities but because public enterprises are facing a conflict of goals, where the role of the supervisory board is according to the Law substantial, since „the Supervisory Board adopts long-term and medium-term business strategy and development plan and is responsible for their implementation; adopt an annual or three-year business program, harmonised with the long-term and medium-term business strategy and development plan; decide on status changes, the establishment of other legal

entities and capital investment; make a decision on the distribution of profit, etc." (Article 22).

Besides that, Thiruvadi and Huang (2011, p. 483) argue that the presence of female members on the board may further enhance public confidence. No research has been conducted in Serbia that could confirm or reject this opinion, and therefore we could not take this statement for granted, but there is no doubt that appointing persons with more expertise in accounting on the supervisory boards of public enterprises may enhance public confidence. And since the majority of chartered accountants are women, this would mean greater participation of women on these boards.

A negligible statistically insignificant relationship is also found when the impact of the age of the director and supervisory board chairman on earnings management was observed. We found that public enterprises governed by younger directors and supervisory board chairmen are more engaged in earnings management practices, but having in mind that the correlation is negligible and not statistically significant, our study supports findings that the age of director and supervisory board chairman does not contribute to financial reporting quality, at least in public enterprises. Therefore, the hypothesis according to which younger people are more engaged in earnings management practises would be rejected. However, it should be noted that we were dealing with a small sample size.

Our results show that the management of smaller entities is more engaged in earnings management practices than the management of the larger public enterprises. A medium-strong (high) statistically significant relationship is established between the entity size and earnings management practices, in the sense that more earnings management practices are present in smaller size entities.

But these results should not be interpreted without the findings that older persons were appointed as directors, as well as supervisory board members, of entities with larger assets, equity, and cash flow. For the years 2016 and 2017, a positive medium-strong and medium statistically significant relationship is found between the age of the director and the cash flow ($p = 0.521$, $\rho = 0.046$ for the 2016; $p = 0.491$, $\rho = 0.046$), while a positive medium-stong statistically significant relationship is found in 2017 between the age of the director and the value of the assets ($p = 0.5$, $\rho = 0.041$). A positive stong-medium statistically significant relationship is found between the ages of the board members appointed by the local authority with total assets and equity which means that the local authority appointed older board members in entities with larger assets ($p = 0.533$, $\rho = 0.028$ for the 2017; $p = 0.549$, $\rho = 0.015$ for the 2018) and equity ($p = 0.581$, $\rho = 0.014$ for the 2017; $p = 0.517$, $\rho = 0.023$ for the 2018). Thus, we can conclude that the local government has appointed older persons to the posts of directors, as well as members of the supervisory board. These results could also be explained by the fact that the elderly are better established in the political sphere and therefore obtain a more powerful post than the younger ones.

7. Conclusions

Even the effect of gender on earnings management has been quite often discussed by scholars; this is the first study exploring gender and age effect on earnings management of public enterprises. Since public enterprises have different goals than private companies and public companies, different results are not unexpected. First, it can be concluded that earnings management practices occurred in public enterprises as well.

Second, our analysis reveals that age and gender have no impact on earning management practices. We found a weak relationship between the percentage of a woman on boards and engaging in earnings management, but this relationship is not statistically significant. We also found a statistically insignificant negligible relationship between the age of the director and supervisory board chairman and earnings management practices.

But, as Bampton and Maclagan (2009) have suggested, special caution should be paid to the interpretation of the results of gender studies. The lack of a statistically significant relationship between the sex and age of directors, as well as the supervisory board chairman and supervisory board members on earning management practices, could be the consequence of a small statistical sample, as well as the consequence of the possibility that these persons are not the real decision-makers in public enterprises, having in mind that all of them could be highly influenced by the local authority.

The possibility of this second hypothesis is reinforced by the fact that the majority of the supervisory board members do not have sufficient knowledge not only to have a suspicion about earnings management practices, but do not understand the financial reports by themselves. This thesis is also supported by the fact that the directors as well as the majority of the supervisory board members, including the board chairman, are appointed by the local authority, whereas the career destiny of the third member which is elected by the employees is in the hand of the one appointed by the local authority. This thesis is as well supported by studies that indicate low public confidence in public enterprises and local authorities as well, particularly in transitional and emerging economies.

Therefore, we are suggesting, within the framework of the reform of the public administration, to introduce a new standard requiring that the members of the supervisory board appointed by the local authority are certified public accountants. Since the overwhelming majority of certified public accountants in Serbia are women, in order to avoid a possible discriminatory gender practice, we suggest that at least one member of the supervisory board appointed by the local authority be a woman. This would also be in line with the EU Gender Equality Strategy 2020-2025, according to which, unblocking the ’women on boards’ directive proposal is declared as one of the EU priorities.

„It is often emphasised in the literature that women constitute half of all societies, but their needs and rights are not reflected in social decisions.“ (Hernik, Vera, 2020, p. 83). The observation of public enterprises founded by the City of Belgrade strongly supports that stand. The lack of women appointed as directors and supervisory board members supports the conclusion that participation in politics is of greater importance than experience and expertise in the field of management. We strongly support the idea that the gender equality

strategy is even more important for public enterprises than for the one referred to in the 'women on boards' directive proposal refers.

Only a supervisory board composed of competent individuals could „supervises the work of the director, discusses financial reporting matters and external audit reports and brings the decision of adopting financial reports" as the Law prescribed, while a higher women participation on boards would contribute to forming a society which would respect more the attitudes of women and men.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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DIAGNOSTICS OF CORPORATE CULTURE ON MACHINE-BUILDING ENTERPRISES IN UKRAINE[3]

The article identifies and classifies the factors influencing the formation of corporate culture on favourable and inhibitory factors. It was found that the effective influence on the corporate culture of machine-building enterprises is ensured by the availability and clear functioning of certain components of corporate culture, which can provide events that respect corporate traditions, respect for labour, intellectual, sports achievements; and spread corporate culture at the enterprise on internal and external environment. It was found that the main important components of corporate culture include: regulations, standards, organisational structure.

A methodological approach to the assessment of corporate culture on the basis of formalised and informal methods, taking into account expert assessment, is proposed. It takes into account the general style of leadership in the enterprise, management style, combines the essence of the enterprise, its strategic goals and criteria for success. The results of approbation of the specified approach at the Ukrainian machine-building enterprises are given.

Keywords: corporate culture; assessment methods; factors; strategic development; components; diagnostics

JEL: M14

Introduction

One of the internal sources of stimulating economic growth of enterprises in modern conditions is corporate culture – a set of important provisions of the organisation, due to the mission and development strategy, which are reflected in the social norms and values of most employees. Today, leading foreign and domestic companies use it as a tool for innovation management.

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Mechanical engineering in Ukraine is a leading industry, is the foundation of the country's economic potential. Machine-building enterprises play an important role in implementing the achievements of scientific and technological progress in all sectors of the economy. At the same time, it should be noted that most Ukrainian machine-building enterprises of the post-socialist system find it very difficult to integrate into the world market economy, in particular, due to the lack of corporate culture. The issues of formation and skilful use of corporate culture at Ukrainian machine-building enterprises has arisen only recently. The realities of today's machine-building industry indicate a slight use of principles, methods, approaches of corporate culture in the management of machine-building enterprises, which negatively affects the further activities of these enterprises.

The dynamic development of machine-building enterprises in a changing external environment necessitates constant monitoring of its condition, development trends and the effectiveness of support measures. All these tasks are solved with the help of a well-established process of diagnosing corporate culture. That is why the improvement of methodological approaches to the diagnosis of corporate culture becomes extremely relevant in practice.

The aim of the article is to develop a methodological approach to the assessment of corporate culture in machine-building enterprises.

Recent Research and Publications Analysis

Many researchers focus on the problems associated with the analysis and diagnosis of the corporate culture, its role in the practice of enterprise management.

Foreign economists have devoted their scientific works to certain aspects of assessment and diagnostics of the corporate culture at enterprises in different years, namely: Hofstede G. (1980, 2004), Schein E. (2004), Denison D. (2015), Janovics J., Young J. (2006), Johnson G. (1999), Cameron K. S. & Quinn R. E. (2011), Schlicht E. (2004), Claver E., Llopis J., Garcia D. & Molina H. (1998), Goffee R. (2003), Kim Jean Lee S. & Yu K. (2004), Morcillo P., Rodriguez-Anton J. M. & Rubio L. (2007), Flamholtz E. G. & Yvonne R. (2012), Jofreh M. & Masoumi S. E. (2013), Luigi G., Sapienza P. & Zingales L. (2015), Wahyuningsih S. H., Sudiro A., Troena E. A. & Irawanto D. W. (2019), Gorton G. B. & Zentefis A. K. (2020).

These issues were not left out of the attention of Ukrainian researchers, in particular such as: Zakharchin G. M. (2011), Yevtukhova T.I, Legenko Yu.V., Rodionov O.V & Rudenko O.M. (2013), Smolinska N.V. (2013), Semykina M. V. (2013), Tarasova O. V. & Marinova S. S. (2013), Skrynkovskyi R. (2015), Rudkovskyi O. V. (2015), Shaposhnykov K. (2017), Soroka, O., Kalaur, S. & Balendr, A. (2020).

Summarising the approaches of the scientific community to the assessment of corporate culture in enterprises, informal and formalised methods are distinguished. Informal methods, which are based on the use of qualitative methods, include: in-depth interview; monographic research (observation); study of rules, traditions, ceremonies and rituals that have developed at the enterprise; study of management practices; traditional analysis of the organisation's documents; “Bypass” of the enterprise; observation of meetings, including a clinical

interview. Formalised (quantitative) methods, which are characterised by the use of various standardised questionnaires, include sociological research (questionnaires; tests; role-playing games, trainings; sociometry) and evaluation methods based on corporate culture models, such as the model of G. Hofstede, E. Shane's model, model of C. Handy, D. Denison's model, model of K. Cameron & R. Quinn, model of T. Dila & A. Kennedy.

At the same time, a single approach to the diagnosis of corporate culture, which would take into account the influence of internal and external factors, has not been developed. Moreover, the presence and functioning of certain components of corporate culture have a strong influence on the corporate culture at machine-building enterprises.

Research Results Presentation

In modern conditions of the machine-building enterprises functioning, the estimation and diagnostics of corporate culture is a litmus test of the strategy of the enterprises.

Assessment and diagnostics of the corporate culture of machine-building enterprises is based on the following areas – sociology, economics, psychology, management and marketing, consultants on corporate development of consulting firms. Such an assessment and change in corporate culture should be based on the overall organisational development of the enterprise in accordance with the strategy and goals set.

In order to analyse the factors influencing the formation of corporate culture, it is necessary to first identify and classify them. The factors influencing the formation of corporate culture are classified by us as favourable and inhibiting (Figure 1).

Before embarking on a study to diagnose and develop a corporate culture within an organisation, it is important to understand the internal and external factors that contribute to or inhibit positive changes in the corporate culture of the organisation (Dzinko, 2010).

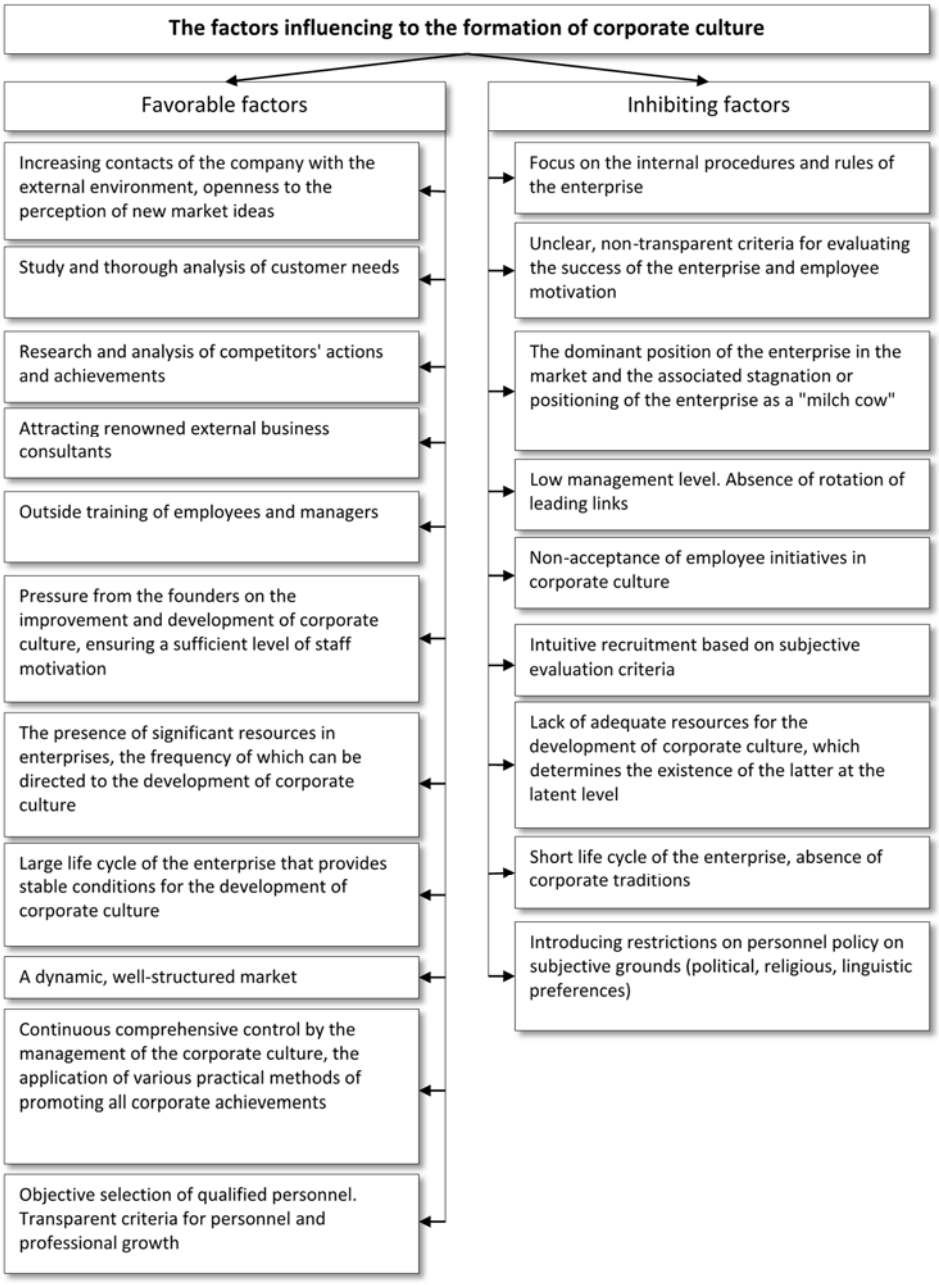
Effective influence on the corporate culture of the enterprise ensures the availability and clear functioning of individual components of the corporate culture.

The action of these components can provide a range of activities that show corporate traditions, inspire respect for work, intellectual development, sports and other achievements, and promote corporate culture in the internal environment of the enterprise and beyond. In general, the purpose of such activities is to educate employees to respect the corporate culture of the enterprise and to encourage them to raise it to an even higher level (Smolinska, 2013).

The main important components of corporate culture include: corporate documents, standards and organisational structure. The nature of these documents must be communicated to the workers through corporate media. These corporate requirements must be accepted by all employees of the team. Such measures will provide a high level of trust in them and will promote the development of relationships in the team (Berdynets, Surzhenko, 2016).

Figure 1

The factors influencing the formation of the corporate culture



Source: Created by the authors on the basis of Pekar, 2012; Androsova, 2019.

Making the necessary changes will help improve the corporate culture. To do this, it is necessary to conduct a study of the corporate culture already existing at the enterprise. In every mechanical engineering enterprise, there is often a unique corporate culture and in order to take steps to improve it, one must understand what is happening at the enterprise at the moment. The main methods of assessing corporate culture at the enterprise are summarised in Table 1.

Table 1

Methods of assessing the state of the corporate culture at machine-building enterprises

Groups of methods	Methods
Informal methods (interpretative, ideographic), which are based on the use of qualitative methods	in-depth interview
	monographic research (observation)
	study of the rules, traditions, ceremonies and rituals that have developed at the enterprise
	study of management practices in the enterprise
	traditional analysis of organisation documents
	„Bypass“ of the enterprise
	observing meetings, including clinical interviews
Formalised (quantitative) methods characterised by the use of different standardised questionnaires	sociological research (questionnaires; tests; role-plays, trainings; sociometry)
	G. Hofstede model
	E. Shane model
	H. Handy model
	D. Denison's model
	K. Cameron and R. Quinn model
	T. Dila and A. Kennedy model

Note: Created by the authors on the basis of (Yevtukhova and others, 2013)

The main problem in Ukraine is an insufficient study of corporate culture, insufficient systematicity in the existing models of foreign scientists. All this has led to the absence of a methodology for assessing corporate culture based on a systematic approach that would allow the heads of mechanical engineering enterprises to comprehensively diagnose the corporate culture of enterprises (Androsova, 2019).

To solve the problem of diagnosing corporate culture at machine-building enterprises, a methodological approach based on both standard diagnostic procedures and special methods for assessing corporate culture at machine-building enterprises is proposed. This approach is based on performing actions in two stages (Figure 2).

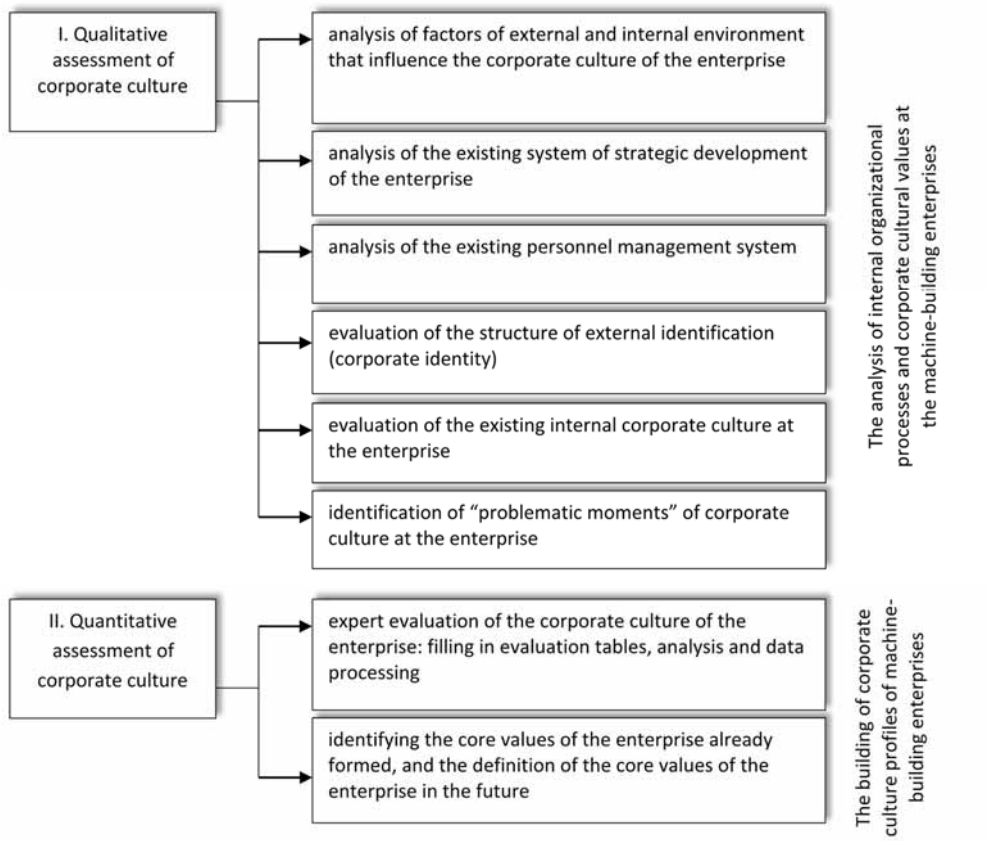
I. Qualitative assessment of corporate culture

The analysis of internal organisational processes and corporate cultural values at the machine-building enterprises, which consists of the following components:

- analysis of factors of the external and internal environment that influence the corporate culture of the enterprise;
- analysis of the existing system of strategic development of the enterprise: a study of the existing regulations of strategic management, their applicability and effectiveness for the enterprise;

Figure 2

Stages of diagnosis of corporate culture machine-building enterprises



Source: Created by the authors on the basis of Prokhorova, Us & Bezuhla, 2015.

- analysis of the existing personnel management system: studying the regulations on personnel management, their compliance with the strategic goals and objectives of the enterprise, their applicability and effectiveness for the enterprise;
- evaluation of the structure of external identification (corporate identity) – analysis of the application and recognition of the corporate style of the machine-building enterprise in interaction with the external and internal environment;
- evaluation of the existing internal corporate culture at the enterprise – analysis of the existing internal corporate culture within the enterprise, and in interaction with clients;
- identification of „problematic moments" of the corporate culture at the enterprise – analysis and identification of „problematic moments" of corporate culture of the

enterprise, development of recommendations for their elimination. (Prokhorova, Us, Bezuhla, 2015).

The analysis of the existing corporate culture at the enterprises of mechanical engineering is carried out in the following main directions: basic values; traditions and symbolism; standards of behaviour; „Heroes" of the enterprise; brand perception (Androsova, 2019).

To do this, it is necessary to identify the basic values of the already formed enterprise and to determine the basic values of the enterprise in the future.

II. Quantitative assessment of corporate culture. This technique is based on the construction of profiles of the corporate culture of machine-building enterprises by conducting an expert assessment of the corporate culture of the enterprise. It is necessary to identify the basic values of already established enterprises and to determine the basic values of enterprises in the future.

At this stage, an expert evaluation of the corporate culture of enterprises is carried out: filling in evaluation tables, analysis and processing of data.

At the first stage, it is necessary to carry out an expert assessment of corporate culture at the enterprises of machine-building enterprises with the use of the specified methods (Table 1) and to estimate its present character (a column „Current condition") (Table 2).

Table 2

The total amount of points for processing the corporate culture score in the enterprise

Responses to the „Current Status" column			Answers column for the „future Status"		
Version	Sum of points	Average value (Total score: 6)	Version	Sum of points	Average value (Total score: 6)
A			A		
B			B		
C			C		
D			D		
TOTAL:	600	100	TOTAL:	600	100

Note: Created by the authors on the basis of Yevtukhova and others, 2013.

At the second stage of the assessment, the same questions are proposed, but they must be answered based on the vision of the company in five years (column „Future status" Table 2). It is necessary to present what the corporate culture of an enterprise that was able to achieve strategic goals should look like (Androsova, 2019).

The evaluation table includes six questions, which contain four possible answers (Table 3). In order to answer each question in detail, it is necessary to distribute points of 100-point evaluation between the four variants in such a ratio that really corresponds to the machine-building enterprise being analysed. The highest number of points should be given to those questions which, according to the expert, are more relevant to the management of the enterprise. When answering each question, the total score should be equal to 100.

Table 3

Corporate Culture Expert Rating at PJSC "Poltava Turbomechanical Plant"

Directions of assessment		Current Status	Future Status
1. Characteristics of the enterprise			
A	The enterprise is unique in its features. It is like a big family. Workers have a lot in common.	50	50
B	The enterprise is very dynamic and imbued with the spirit of development and improvement. Workers are willing to sacrifice themselves	25	25
C	The enterprise is result-oriented. The main concern is to achieve the task. Workers are focused on rivalry and goal achievement.	15	25
D	The enterprise is rigidly structured and strictly controlled. Workers' actions are determined by formal procedures.	10	0
Summary (points):		100	100
2. General style of leadership in the enterprise			
A	The overall leadership style of the enterprise is an example of monitoring, the desire to help and teach.	20	30
B	A common leadership style is an example of authority, innovation and risk-taking.	40	25
C	The general style of leadership is an example of efficiency, aggressiveness and result orientation.	10	25
D	A common leadership style sets an example for coordination, clear organisation, or streamlined profitability.	30	20
Summary (points):		100	100
3. Management style at the enterprise (human potential management)			
A	The management style at the company promotes teamwork, unanimity and decision-making.	30	30
B	The management style at the enterprise promotes individual employee risk, innovation, freedom and identity.	20	20
C	Management style in the enterprise is characterised by high demand, a strong desire for competitiveness and the promotion of achievement.	20	20
D	Management style at the enterprise is characterised by a guarantee of employment, a requirement of subordination, predictability and stability in the relations of the team.	30	30
Summary (points):		100	100
4. The uniting essence of the enterprise			
A	The enterprise combines commitment and mutual trust. Duty is highly appreciated.	40	45
B	The company combines a commitment to innovation and improvement. The need to be on the front lines is emphasised.	40	45
C	The enterprise combines an emphasis on goal achievement and task accomplishment. Common topics are aggression and victory.	10	5
D	The company combines formal rules and official policies	10	5
Summary (points):		100	100
5. Strategic goals of the enterprise			
A	The company focuses on humane development. High confidence, honesty and responsiveness are strongly maintained.	25	25
B	The company focuses on getting new resources and solving new problems. Approval of the new and exploration of the enterprise's capabilities are appreciated.	35	25
C	The company focuses on competitive actions and achievements.	20	25
D	The company focuses on stability and stability.	20	25
Summary (points):		100	100
6. Criteria for success of the enterprise			
A	The company strives for success on the basis of human resources development, teamwork, employee enthusiasm and concern for people.	25	25

Directions of assessment		Current Status	Future Status
B	The company seeks success by owning unique or new products. It is a production leader and innovator in the market.	25	40
C	The company seeks success on the basis of winning the market and outperforming its competitors. The key to success is competitive market leadership.	20	15
D	The company strives for success on the basis of profitability, reliable delivery, smooth schedules and low production costs.	30	20
Summary (points):		100	100

Note: Created by the authors based on (Official site of PJSC „Poltava Turbomechanical Plant").

Only after the rating filling of Table 2, it is necessary to add up the scores of all the answers «A» in the column „Current status" and then divide the received amount by 6 and calculate the average score on the answer «A». Such calculations should be made for options «B», «C», «D». Then it is necessary to add the scores of all the answers «A» in the column „Current Status" and divide by 6 to calculate an average of Option «A», but for the «Future Status». Such calculations are repeated for options «B», «C», and «D» for the «Future Status» column. For this purpose, the final calculations will be represented in Table 2.

Such estimation, with the help of a sum of points, will give the enterprises of machine-building enterprises an idea of how the analysed enterprise works and its main values.

In today's Ukraine, only a small number of machine-building enterprises use the principles of corporate culture in management. Such enterprises include, in particular, PJSC «Poltava Turbomechanical Plant» and PJSC "Zaporizhkran". Therefore, testing of the proposed methodological approach was carried out at these enterprises.

Consider the result of the point evaluation of "Poltava Turbomechanical Plant", the data are summarised in Table 3.To process the corporate culture score evaluation of PJSC "Poltava Turbomechanical Plant", we will input the data to Table 4.

Table 4

The total amount of points for processing the corporate culture score of PJSC "Poltava Turbomechanical Plant"

Responses to the «Current Status» column			Responses to the «Future Status» column		
Version	∑ points	mean score	Version	∑ points	mean score
A	190	31,66	A	205	34,16
B	185	30,83	B	180	30,00
C	95	15,83	C	115	19,16
D	130	21,67	D	100	16,66
Total	600	100	Total	600	100

Note: Created by the author based on (Official site of PJSC «Poltava Turbomechanical Plant»).

Data indicated in Table 4 show that the enterprise is characterised by such values as uniqueness, employees have much in common, the overall leadership style in the enterprise is an example of authority and innovation. The enterprise has low scores for the actions of workers determined by formal procedures; low overall leadership style, which is an example of efficiency, aggressiveness, result orientation. The company needs to pay attention to the

achievement of the goal and the accomplishment of the task, the formal rules and the orientation policy.

Find out the expert rating assessment of corporate culture at the PJSC "Zaporizhkran"; the data are summarised in Table 5.

Table 5

Corporate Culture Expert Rating at PJSC "Zaporizhkran"

Directions of assessment		Current Status	Future Status
1. Characteristics of the enterprise			
A	The enterprise is unique in its features. It is like a big family. Workers have a lot in common.	25	45
B	The enterprise is very dynamic and imbued with the spirit of development and improvement. Workers are willing to sacrifice themselves	25	20
C	The enterprise is result-oriented. The main concern is to achieve the task. Workers are focused on rivalry and goal achievement.	25	20
D	The enterprise is rigidly structured and strictly controlled. Workers' actions are determined by formal procedures.	25	15
Summary (points):		100	100
2. General style of leadership in the enterprise			
A	The overall leadership style of the enterprise is an example of monitoring, the desire to help and teach.	25	25
B	A common leadership style is an example of authority, innovation and risk-taking.	30	30
C	The general style of leadership is an example of efficiency, aggressiveness and result orientation.	25	25
D	A common leadership style sets an example for coordination, clear organisation, or streamlined profitability.	20	20
Summary (points):		100	100
3. Management style at the enterprise (human potential management)			
A	The management style at the company promotes teamwork, unanimity and decision-making.	30	30
B	The management style at the enterprise promotes individual employee risk, innovation, freedom and identity.	25	25
C	Management style in the enterprise is characterised by high demand, a strong desire for competitiveness and the promotion of achievement.	25	25
D	Management style at the enterprise is characterised by a guarantee of employment, a requirement of subordination, predictability and stability in the relations of the team.	20	20
Summary (points):		100	100
4. The uniting essence of the enterprise			
A	The enterprise combines commitment and mutual trust. Duty is highly appreciated.	30	30
B	The company combines a commitment to innovation and improvement. The need to be on the front lines is emphasised.	25	25
C	The enterprise combines an emphasis on goal achievement and task accomplishment. Common topics are aggression and victory.	30	30
D	The company combines formal rules and official policies	15	15
Summary (points):		100	100
5. Strategic goals of the enterprise			
A	The company focuses on humane development. High confidence, honesty and responsiveness are strongly maintained.	30	30
B	The company focuses on getting new resources and solving new problems. Approval of the new and exploration of the enterprise's capabilities are appreciated.	30	40
C	The company focuses on competitive actions and achievements.	25	15
D	The company focuses on stability and stability.	15	15

Directions of assessment		Current Status	Future Status
Summary (points):		100	100
6. Criteria for success of the enterprise			
A	The company strives for success on the basis of human resources development, teamwork, employee enthusiasm and concern for people.	20	20
B	The company seeks success by owning unique or new products. It is a production leader and innovator in the market.	25	25
C	The company seeks success on the basis of winning the market and outperforming its competitors. The key to success is competitive market leadership.	35	35
D	The company strives for success on the basis of profitability, reliable delivery, smooth schedules and low production costs.	20	20
Summary (points):		100	100

Note: Created by the authors based on (Official site of PJSC «Zaporizhkran»).

The result of the expert rating assessment of corporate culture must be finalised with the help of a score. Consider the result of the scoring of the corporate culture at PJSC "Zaporizhkran". The total amount of points for processing the score of corporate culture of PJSC "Zaporizhkran" is given in Table 6.

Table 6

The total amount of points for processing the corporate culture score of PJSC "Zaporizhkran"

Responses to the «Current Status» column			Responses to the «Future Status» column		
Version	∑ points	mean score	Version	∑ points	mean score
A	160	26,67	A	180	30,00
B	160	26,67	B	165	27,50
C	165	27,50	C	150	25,00
D	115	19,17	D	105	17,50
Total	600	100	Total	600	100

Note: Created by the author based on (Official site of PJSC «Zaporizhkran»)

According to the calculations of Table 6 it can be argued that the company has values that characterise it as a large family; employees have a lot in common; the enterprise is very dynamic and imbued with the spirit of development and improvement; workers are willing to sacrifice themselves and take risks; the general style of leadership at the enterprise is large; human resource management is characterised by the encouragement of teamwork, unanimity and participation in decision-making. The company needs to improve its strategic goals and the unifying essence of the company.

Research Conclusions and Outlook

As a result of the research, the factors influencing the formation of corporate culture on favourable and inhibitory factors are identified and classified. It was found that the effective influence on the corporate culture of machine-building enterprises is ensured by the availability and clear functioning of certain components of corporate culture, which can provide events that respect corporate traditions, respect for labour, intellectual, sports achievements and spread corporate culture at the enterprise on the internal and external

environment. It was found that the main important components of corporate culture include: regulations, standards, organisational structure.

A methodological approach to the assessment of corporate culture on the basis of formalised and informal methods, taking into account expert assessment, is proposed. It takes into account the general style of leadership in the enterprise, management style, combines the essence of the enterprise, its strategic goals and criteria for success. This methodological approach is accessible and understandable for employees of machine-building enterprises. The application of this approach will help increase the profits, reputation and image of machine-building enterprises, encourage human resources, fill the market with new domestic products, increase the competitiveness of the enterprise and provide new jobs in the labour market.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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PROSPECTS FOR THE DEVELOPMENT OF SMALL AGRICULTURAL BUSINESS ENTITIES IN THE MARKET ENVIRONMENT[5]

One of the promising areas for creating a competitive market environment is the development of small businesses. Small businesses need to increase their competitive advantage over other market participants in order not to lose their place in the economic system, especially in a pandemic, while becoming drivers of economic growth.

The purpose of the study is to examine the factors influencing the behaviour of small businesses in the market environment during the epidemic by understanding the existing problems and strategic orientations of their activities. The article forecasts the number of small agricultural business entities in order to understand the problems and prospects for development in a market environment (using retrospective and statistical research methods); the directions of support for exporters of agricultural products have been given; the change in the dynamics of goods export by small enterprises has been analyzed (using the methods of economic and mathematical modelling), the level of social responsibility of agrarian business entities as a necessary element for the implementation of export operations in foreign markets (with a built self-organizing map). It has been proven that small business entities have a basic level of social responsibility, but in order to strengthen their competitive position and the need to enter foreign markets, enterprises need to improve to a sufficient level. It has been found that problematic factors for exports need to be addressed, namely: access to trade finance, inappropriate production technologies, identification of potential markets and buyers; technical requirements and standards. It has been substantiated that it is necessary to strengthen the assistance of small enterprises in access to information,

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implementation of the WTO Agreement on Trade Facilitation, taking into account the interests of small enterprises, their involvement in regulatory activities in the field of trade.
Keywords: development; agricultural sector; micro; small business; market environment; local social responsibility
JEL: Q12; Q13; Q14

1. Introduction

Improving the efficiency of small business development in terms of foreign economic activity is a strategic task of public policy in the context of integrating the national economy into the world economic system, an important component of which is the market environment. The predominance of market principles of management in the agricultural sector on risky activities as result of the increased commercial risk and uncertainty in the situation of sales of agricultural products. Studies show that the number of business entities in Ukraine is declining (2020-2022), but by implementing local social responsibility (LSV), small agricultural businesses have the opportunity to operate stably in a market environment with a positive financial result.

Improving the conditions of small enterprises' access to foreign markets (providing consulting and analytical services related to export-import activities of enterprises, expanding trade and economic ties) and the formation of business culture in a pandemic is of particular importance. At the same time, the agricultural sector, entering foreign markets, have standards of the adequacy of production and – social responsibility, a social example of which are the subjects of the agricultural sector of Mykolayiv region with a sufficient and high level of local social responsibility. The practice of applying the principles of LSV in this area can be an example of research by enterprises in different regions of Ukraine. Taking into account the requirements of external stakeholders, based on the principles of Sustainable Development, business entities should, in addition to obtaining a positive economic result, adhere to the directions of socially responsible policy.

2. Literature Review and Hypothesis Development

A. Aliyeva, M. Orlatiy, A. Velychko, V. Zayats, Y. Lupenko, M. Kropyvko, P. Sabluk, and others study the activity of entrepreneurial formations in the agricultural sector. The role of small businesses in the development of the agricultural sector was considered in the works of V. Galushko, O. Pavlov, K. Prokopenko, O. Radchenko and others.

Thus, K. Prokopenko (2012) believes that "the importance of small agricultural producers (farms and households) in the Ukrainian agricultural sector has increased significantly over the past decade. Despite the existence of serious problems, they are currently important producers of agricultural products in Ukraine". O. Radchenko (2011) notes: "Small enterprises play a significant role in agricultural production, food security of the state, their activities partially contribute to solving social problems of the village, establishing sustainable development of rural areas, providing employment and income support of the rural population".

According to N. Stoyanets (2018), international experience in combination with research of domestic scientists proves the justification of turning to the theory and practice of small business development as a tool for systemic solutions to socio-economic problems of rural areas and comprehensive growth of the agricultural economy as a whole. Entrepreneurial competencies and growth of small and medium enterprises, the mediating role of network competence were studied by S. Tehseen, F.U. d Ahme, Z.H. Qureshi, M.J. Uddin, T. Ramayah (2019).

The issues of ensuring export activities by small agricultural business entities in a market environment require further research.

3. Methodology

The methodological tools of the study were the following methods: historical and logical (study of theoretical views on the need to develop small agrarian business entities for economic growth), monographic (study of the market environment of small business development in a pandemic), statistical (study of the changing dynamics in the number of subjects of "small businesses and enterprises exporting products), economic and mathematical modelling (forecasting the number of small businesses in agriculture, forestry and fisheries as an important element in creating and maintaining an effective agricultural business system). The study of the social responsibility level of small businesses in the market environment, as a necessary component of export operations to foreign markets, was carried out using the method of expert assessments by clustering and building self-organizing maps.

Methods of statistical analysis (average absolute growth, average growth rate) were used to develop a forecast of the number of small enterprises in the agricultural sector of Ukraine until 2022.

Forecast for L steps (time periods) forward using the average absolute increase was carried out using the formula:

$$\widetilde{y_{n+L}} = y_n + L\Delta\overline{y} \quad (1)$$

where:

y_n is the actual value of the indicator at the last n-th point of the series;
L – bias period;
$\widetilde{y_{n+L}}$ – forecast value of (n + L)-th series;
Δy – the value of the average absolute growth.

To construct Kahonen's self-organizing maps, the clustering method developed by scientists A. A. Barsegyan, M. S. Kupriyanov, I. I. Kholod, M. S. Tess, S. I. Elizarov was used. Clustering is based on the use of the distance between the vectors. A non-negative number d (x, y) is called the distance (metric) between the vectors x and y, if the following conditions are met:

1. d (x, y) ≥ 0 for all x and y.

2. d (x, y) = 0, if and only if x = y.
3. d (x, y) = d (y, x).
4. d (x, y) ≤ d (x, k) + d (k, y) – triangle inequality.

4. Results

The importance of small business for the national economic development in the context of economic and social components is characterized by the creation of new jobs in rural areas (according to the WTO, such companies provide about two-thirds of total employment in both developed and developing countries), especially in pandemic conditions, excessive decentralization processes and destruction of territorial infrastructure. In modern conditions, the problems of communication between the government and small business are in a state of aggravation, because they need to address the issue of providing small businesses with government orders, work, loans for the construction of industries, enterprises, job creation. On the part of small businesses, it is necessary to adapt to new realities and master new skills, such as e-commerce, e-marketing, which the government should intensify.

Taking this into account, the forecast of the number of small businesses in the agricultural sector in the national economy for 2020-2022 was carried out.

Table 1

Calculation of forecast values of the number of small businesses in the agricultural sector for 2020-2022 (units)

Years	Forecast values for:		
	average absolute growth	average growth rate	average growth rate
2020	$\hat{y}_{2020} = 73{,}13 + 1x0{,}074 = 73204$	$\hat{y}_{2020} = 73{,}13 \times 1{,}001^1 = 73204$	$\hat{y}_{2020} = 73{,}13 \times (0{,}001 + 1)^1 = 73204$
2021	$\hat{y}_{2021} = 73{,}13 + 2x0{,}074 = 73278$	$\hat{y}_{2021} = 73{,}13 \times 1{,}001^2 = 73279$	$\hat{y}_{2021} = 55254{,}2 \times (0{,}001 + 1)^2 = 73279$
2022	$\hat{y}_{2022} = 73{,}13 + 3x0{,}074 = 73352$	$\hat{y}_{2022} = 73{,}13 \times 1{,}001^3 = 73353$	$\hat{y}_{2022} = 55254{,}2 \times 0{,}001 + 1)^3 = 73353$

Source: own calculations according to the State Statistics Service of Ukraine.

The results of the conducted statistical and retrospective research methods give grounds to assert that in the future, there will be an increase in the number of small forms of agrarian business. Thus, their projected value by the end of 2022 is 73,352 units, which is more than the 2020 study by 148 units. It is worth taking into account the crisis situation in 2020 with measures to limit the activities of business entities in the context of national quarantine.

Quarantine, which began in 2020, has significantly affected the agribusiness in terms of reducing the number of businesses in Ukraine. The reason for this is the losses that companies have suffered from the introduction of quarantine restrictions due to the pandemic. It is worth noting that 6% of businesses stopped working in the first month of quarantine (March 2020). One-third of business owners said that their incomes decreased during March-April 2020 by 90-100 percent. Many workers lost their jobs. Quarantine measures have negatively affected the state's economy, small and medium-sized businesses. During 2020, the number of businesses that started operating decreased significantly, by an average of 20 percent. The

state has provided agrarian businesses with the opportunity to obtain "cheap money" as a necessary tool for rapid economic recovery and increasing the number of jobs. The results of the program "Affordable loans 5-7-9%" show that in 2020 more than UAH 16.5 billion in loans were issued to support the development of small and medium-sized businesses. As of October 2021, the number of loan agreements under the relevant program amounted to UAH 66,956.6 million, and the current debt – UAH 52,102.0 million.

Cheap money is a necessary tool for the rapid recovery of the economy and for the increase the number of jobs. At the same time, the potential for the development of agricultural enterprises is due to the demand for goods and services in a market environment. One way to expand markets is to export to other countries. About 29% of total exports are small and medium-sized businesses (2015-2017), and half of this volume is accounted for by medium-sized enterprises, and among small ones, every 9th company exports, among micro ones – every 44th company. In order to promote exports to foreign markets, in 2018, an Export Promotion Office was established in Ukraine, the assistance of which is manifested in the following aspects: development of export competencies of Ukrainian business; promotion of Ukrainian goods and services abroad; assistance in establishing cooperation and partnership between Ukrainian and foreign business.

The existence of the Office is effective because, in November 2020, it became a finalist of the European Enterprise Promotion Awards 2020 in the category «Support for Business Internationalization». The Export Promotion Office provides assistance to business entities regardless of their size and experience in conducting foreign economic activity (Table 2).

Table 2

Areas of support for exporters of Ukrainian products

Directions	Characteristic
Export consulting	practical advice on entering foreign markets and developing export potential
Exporter education	opportunities to improve knowledge and skills to prepare businesses for export
Analytics and information	analytical materials to study potential markets for exports: country trade reviews, sector analysis, guides and information on tariff and non-tariff restrictions
Partner search	measures to expand export opportunities and find new foreign partners: trade missions, exhibitions, business forums and online services to develop new contacts

Source: systematized by the authors.

At the same time, a number of strategic documents of the government on export activities of domestic enterprises contain a number of factors and priorities that contribute to the conduct of foreign trade policy, namely: Sustainable Development Strategy: Ukraine 2030; Export Strategy of Ukraine: Roadmap for Strategic Trade Development for 2017-2021; National program of Reforming State Control and Supervisory Bodies, etc.

Ukraine and more than 90 WTO members supported the WTO Members' Declaration on Micro, Small and Medium-sized Enterprises, which will help them enter foreign markets, overcome obstacles faced by businesses in entering foreign markets, and recover from the effects of restrictions introduced through the COVID-19 pandemic.

Let us analyze the tendencies of changes in the export of goods by small enterprises of the agricultural sector in order to identify trends for development in the future (Table 3).

Table 3

Export of goods by small enterprises of the agricultural sector

Indicators	Years				
	2015	2016	2017	2018	2019
Total foreign trade participants					
Number of units	9345	10302	10430	10944	10988
USD million	4658,2	4571,3	5028,7	5775,7	6607,7
In agriculture, forestry and fisheries					
Number of enterprises	456	700	895	965	1059
USD million	154,9	238,6	426,8	447,2	587,7
% to the total	3,3	5,2	8,5	7,7	8,9

** Data are given without taking into account the results of banks, budgetary institutions of the temporarily occupied territory of the Autonomous Republic of Crimea, Sevastopol and part of the anti-terrorist operation zone*

Source: constructed using data from the State Statistics Service of Ukraine.

Thus, exports of goods by small enterprises in the agricultural sector tend to increase (587.7 million US dollars in 2019 against 154.9 million US dollars in 2015). The forecast of the enterprises' number, exporting products to foreign markets in 2020, taking into account the retrospective and statistical analysis of the dynamics, indicates an increase in their number by 197 units. (1256 enterprises; polynomial trend of the 4th order: $y = 9{,}375x4 – 106{,}42x3 + 379{,}63x2 – 290{,}58x + 464$ with the coefficient of determination $R^2 = 1$).

The partial or complete loss of traditional markets, which has occurred in recent years, increases the need to find effective solutions for the development of exports of Ukrainian products. Given that Ukrainian exports consist mainly of raw materials, which indicates inefficient use of resources, makes the Ukrainian economy dependent on price fluctuations in world markets and contains potential risks to economic and social stability. In order to reduce risks and ensure stable growth in the export of Ukrainian products, the Export Strategy of Ukraine («road map» of strategic trade development) for 2017-2021 and a plan of tasks for its implementation have been developed.

The aim of the Strategy is Ukraine's transition to the export of innovative high-tech products for sustainable development and successful entry into world markets. At the same time, business entities should have a sufficient level of local social responsibility (LSV) to ensure: the use of modern agricultural technologies, environmentally friendly herbicides and pesticides, organic waste in the fields, anti-erosion measures; reduction of emissions into the environment; development of the enterprise social infrastructure and employees' social security.

To study the level of local social responsibility of small business we have chosen the enterprises of the Mykolaiv region. As of 2019, in the Mykolaiv region, there were 3913 enterprises of an agricultural direction, from which 31 enterprises of the Mykolaiv region (value of the coefficient of determination), were chosen for research. It should be noted that enterprises of different sizes of entrepreneurial activity were selected for the study, where manifestations of local social responsibility are observed (Table 4).

Table 4

Score assessment of the level of local social responsibility of the investigated agricultural enterprises of the Mykolaiv region

Enterprise	LSV level	LSV Evaluation (Score)	Correction factor	Total score of LSV	LSV rating
Small business entities (including micro-enterprises)					
«Agroalliance» LLC Arbuzynsky district	Base	3	1.0	15.30	10
Agricultural firm «Vasylivka» Berezansky district	Base	3	0.7	10.71	14
«Valentina» FC Bereznehuvatsky district	Base	2	0.8	8.16	15
«Gavenko IV» FC Yelanets district	Base	3	0.8	12.24	13
«Promin» ALLC Novoodesky district	Sufficient	6	1.0	30.6	4
«Bila Tserkva» LLC Novobuzhsky district	Base	2	0.8	8.16	15
«Argo» LLC Novobuzhsky district	Base	2	0.7	7.14	16
«Zirka» JLLC Novobuzhsky district	Base	3	0.8	12.24	13
Novosillya LLC, Kazanka district	Sufficient	6	1.0	30.60	4
«Dumitrash» LLC Novoodesky district	Sufficient	4	0.9	14.28	11
«Urozhainyi» APC the Mykolaiv aregion	Sufficient	6	0.8	24.48	6
«Vladam» FC Vitovsky district	Sufficient	6	0.8	24.48	6
«Toftul» FC Novoodesky district	Base	2	0.7	7.14	16
«Soyuz-Agro» LLC Novoodesky district	Sufficient	4	0.7	13.35	12
«Zolotyi Kolos» LLC Vitovsky district	Sufficient	6	1.0	30.60	4
Medium business entities (medium)					
«Named after Taras Shevchenko» ALC Novoodesky district	High	7	1.0	35.70	3
T.G. Shevchenko ALLC Bereznehuvatsky district	Sufficient	5	1.0	25.5	5
«Vradiyivsky» JSC Vradiyivskyi district	Sufficient	6	1.0	30.6	4
«Ukraine» JSC Domanivka district	Sufficient	6	0.7	21.42	8
«Victoria» PLC Novobuzhsky district	Sufficient	5	0.9	22.95	7
«Lan» PLC Novobuzhsky district	Sufficient	5	0.9	22.95	7
«Pivdenyi Kolos» ALC Novoodesky district	Sufficient	6	1.0	30.60	4
«Ochakiv district agrochem» LLC Ochakiv district	Base	3	1.0	15.30	10
«Kozyrske» PAE Ochakiv district	Base	3	1.0	15.30	10
«Velykyi Kut-III» PRAE Snihuriv district	Sufficient	4	0.9	18.36	9
«Pivdenne» SE Snihuriv district	Sufficient	4	0.7	14.28	11
«Area-Snihurivka» LLC Snihuriv district	Base	3	0.7	10.71	14
Macro-business entities (large)					
JV Nibulon LLC	High	9	1.0	45.90	1
Kernel Trade LLC (Kernel)	High	9	1.0	45.90	1
Agrarian Holding Avangard LLC	High	8	1.0	40.80	2
«Ukraine-2001»	High	7	1.0	35.70	3

Source: calculated and formed as of 01.01.2020 using materials Lunkina TI.

It was found out that the social agricultural enterprises have formed a social policy and are working on local social responsibility. Regardless of the form of ownership, size, financial resources, there are manifestations of local social responsibility at all levels. Namely, the basic: it is the payment of taxes, non-discrimination; on average: social programs (packages), advanced training of employees; high: interaction with the public, responsible attitude to consumers, formation of non-financial reporting. On the positive side, agricultural enterprises

do not stay away from the problems of vulnerable groups, actively participate in various activities that promote a healthy lifestyle and environmental protection.

It should be noted that the tendency to improve social activity in medium-sized agricultural enterprises, the rating of local social responsibility is higher and large agricultural enterprises, which occupy leading positions in this indicator.

In percentage, among the surveyed enterprises of Mykolaiv region (31 agricultural enterprises), the largest share of LSR is at the basic and sufficient level – 42%, respectively, for each level, the third position is occupied by a high level of responsibility – 16%.

The conducted rating of the specified enterprises allowed to estimate leading positions of the agrarian enterprises of the Mykolaiv region with the maximum rating 45.9 (among which there are 2 business entities) and low level of local social responsibility introduction with the minimum rating 7.14 (among which there are 2 business entities).

This rating makes it possible to assess agricultural enterprises for their use of local social responsibility and is decisive in shaping the image of agricultural enterprises, which directly affects their financial results.

According to the methodological aspects and on the basis of the conducted research, we have built self-organizing maps in assessing the level of local social responsibility of the studied agricultural enterprises of the Mykolaiv region. The variables used to define the business models calculated using MS Excel for Deductor Studio Academic, together with their descriptive statistics, are shown in Table 5.

Table 5

Indicators of variable business models of an estimation of local social responsibility level of the investigated enterprises in the Mykolaiv region, scores

Variable	The average value of local social responsibility	Standard deviation of local social responsibility	Minimum local social responsibility	Maximum local social responsibility	Midpoint local social responsibility
Small business entities (including micro-enterprises)	3,87	1,68	2,0	6,0	3,0
Medium business enteties (medium)	4,75	1,36	3,0	7,0	5,0
Macro-business entities (large)	8,25	0,96	7,0	9,0	8,5

Source: based on MS Excel for Deductor Studio Academic.

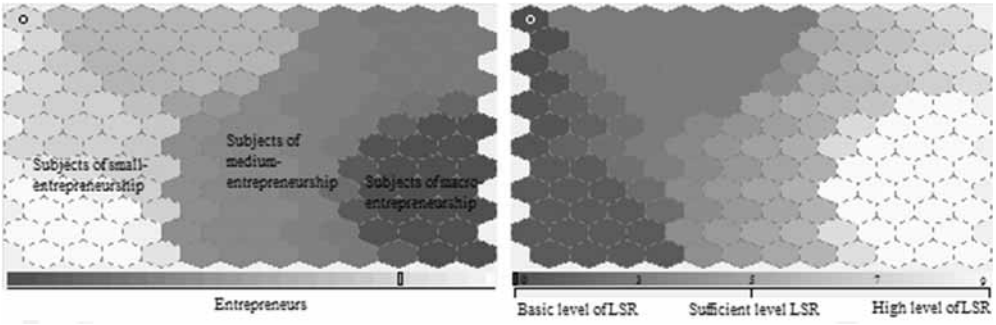
These variables are the basis for constructing self-organizing maps, which show the location of each business model.

On map shows how 300 neurons are organized in a two-dimensional lattice. Each neuron can contain one enterprise, several business entities or can be empty. The different clusters of subjects on the map are marked with appropriate shades and have their own boundaries. The maps are coloured according to the values of the variables. A darker colour on the map indicates a higher value for the variable. Maps show the characteristics of specific clusters.

Based on the data, the Kohonen map was constructed, which contains the level of local social responsibility of business entities in terms of large, medium, small (including micro-enterprises) of the agricultural sector in the Mykolayiv region (Figure 1).

Figure 1

Map for assessing the local social responsibility level of the studied enterprises of the agricultural sector of the Mykolaiv region



a) business entities by size

b) in terms of the development of local social responsibility level

Source: built using Deductor Studio Academic.

Analysis of the map of assessment of the level of local social responsibility of business entities of agricultural enterprises shows that macroeconomic entities (JV Nibulon LLC, Kernel Trade LLC (Kernel), Agrarian Holding Avangard LLC) have a high level, which is the result coordinated strategic approach to the formation of LSR and non-financial reporting; interaction with the community and participation in the development of rural infrastructure; charity; compliance with product quality on the basis of certification; maintaining a healthy lifestyle; social entrepreneurship (various forms of manifestation); social investment. The subjects of medium-sized enterprises in the agricultural sector generally have a sufficient level of local social responsibility (T.G. Shevchenko ALLC Bereznehuvatsky district, «Ukraine» JSC Domanivka district, «Named after Taras Shevchenko» ALC Novoodesky district others), by directions: advanced training of employees; application of the latest technologies (there are appropriate thanks); provision of social packages; development of social programs for employees (health insurance, vouchers to sanatoriums and health camps); material and moral incentives for employees (social benefits, intangible reward programs); training of specialists of the enterprise in the Free Economic Zone of Ukraine; reduction of emissions into the environment; use of environmentally friendly herbicides and pesticides; compliance with the conditions of feeding animals (feed mixtures only natural, balanced); production of quality products.

According to the constructed map, small business entities (including micro-enterprises) have a basic local social responsibility level «Agroalliance» PE Arbuzynsky district, agricultural firm «Vasylivka» Berezansky district, «Valentina» farm Bereznehuvatsky district, «Agro» PE Novobuzhsky district, «Toftul» farm Novoodesky district and others) and are characterized by timely payment of taxes (fees, charges); non-discrimination; timely payment of wages; implementation of measures to improve working conditions and safety;

certification of jobs; opportunity for employees to receive the company's products at cost; sales of products to schools (kindergartens) at cost; using modern agricultural technologies; using waste as organic in the fields; relationships with suppliers and partners.

It should be noted that, on average, there is a tendency to depend on the categories of enterprises; the larger is the enterprise, the higher is the level of local social responsibility.

However, there are vivid examples of enterprises that belong to small businesses («Zolotyi Kolos» LLC Vitovsky district) – there is an average level of local social responsibility; medium business («Named after Taras Shevchenko» ALC Novoodesky district) – a high level of local social responsibility. And among the subjects of small agricultural business, there are manifestations of a sufficient level of LSR (Novosillya LLC, Kazanka district, «Urozhainyi» APC the Mykolaiv district, «Vladam» FC Vitovsky district).

We have presented a detailed description of the tools for building self-organizing maps Kohonen:

Standard deviation – the scattering index of the values of a random variable relative to its mathematical expectation shows how much, on average, the specific values of local social responsibility deviate from their average value.

The lowest standard deviation is concentrated in the field of macro-business entities, which is due to the minimum deviation of the values of the assessment of the level of local social responsibility. Of the four enterprises, JV Nibulon LLC and Kernel Trade LLC (Kernel) have a high level with a score of 9 points, Agrarian Holding Avangard LLC has 8 points and Ukraine-2001 has 7 points. Local social responsibility of medium-sized enterprises has moderate deviations, which is due to the presence in this segment of enterprises with a high level of local social responsibility (7 points) – «Named after Taras Shevchenko» ALC and the basic level of local social responsibility (3 points) – «Area-Snihurivka» LLC, «Kozyrske» PAE, «Ochakiv district agrochem» LLC.

The largest standard deviation is concentrated in the field of small businesses, which is due to the presence in the cluster of enterprises with a basic level of local social responsibility (2 points) «Valentina» FC, «Bila Tserkva» LLC, etc., and enterprises with a sufficient level of local social responsibility – «Vladam» FC. The segment of small business entities has the lowest average value of local social responsibility – 3.67 points, which is associated with different levels of LSR (from 2 to 6 points) and a large number of enterprises at the basic level. Medium-sized businesses have an average value of 4.75, which is due to the larger number of enterprises with a sufficient level of local social responsibility. The segment of macroeconomic entities has the highest average value, which is associated with a high level of local social responsibility and a small number of enterprises.

For small businesses, the minimum value of the level of local social responsibility is 2 points, medium business – 3 points, macro business – 7 points. The highest value of the level of local social responsibility is typical for the segment of macro-entrepreneurs with its score of 9 points, for medium-sized enterprises – 7 points, for small businesses – 6 points, i.e. the maximum value of local social responsibility for medium-sized enterprises corresponds to the minimum for large, which clearly demonstrates the gap in the development of their local social responsibility.

For local social responsibility of small businesses, the median score is 3 points, for medium-sized businesses – 5 points, for macro-businesses – 8.5 points, which indicates the location in the middle of a number of values of business entities with different levels of local social responsibility development.

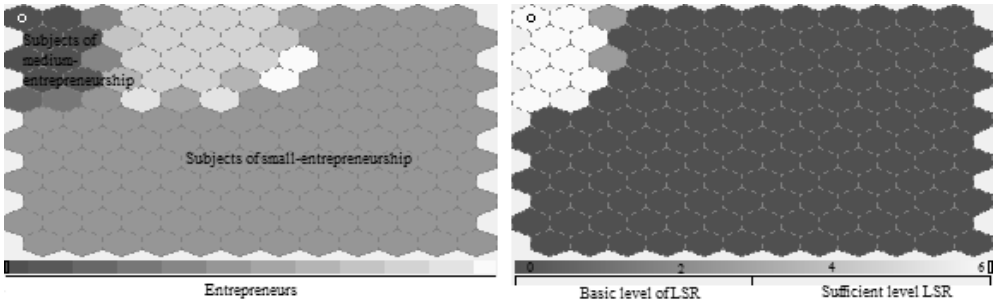
For a detailed assessment of the local social responsibility level of business entities in the Mykolaiv region, we have built self-organization maps of medium and small enterprises (Figure 2). Analysis of the data of the local social responsibility assessment map of small and medium enterprises confirms that the subjects of medium-sized enterprises have a sufficient level (4-6 points), and the subjects of small enterprises – basic (0 to 3 points).

Macroeconomic entities are characterized by a high level of LSR (7-10 points) because they develop a strategy for the development of local social responsibility; generate non-financial reports; actively cooperate with public authorities on the basis of state and social partnership; make social investments.

With regard to medium-sized businesses, the level of development of local social responsibility is at a sufficient level; in the future, it is possible to move to a higher level, in the case of the above measures.

Figure 2

Map for assessing the level of local social responsibility of small and medium business entities in the agricultural sector of the Mykolaiv region



a) business entities by size

b) in terms of the development of local social responsibility level

Source: built using Deductor Studio Academic.

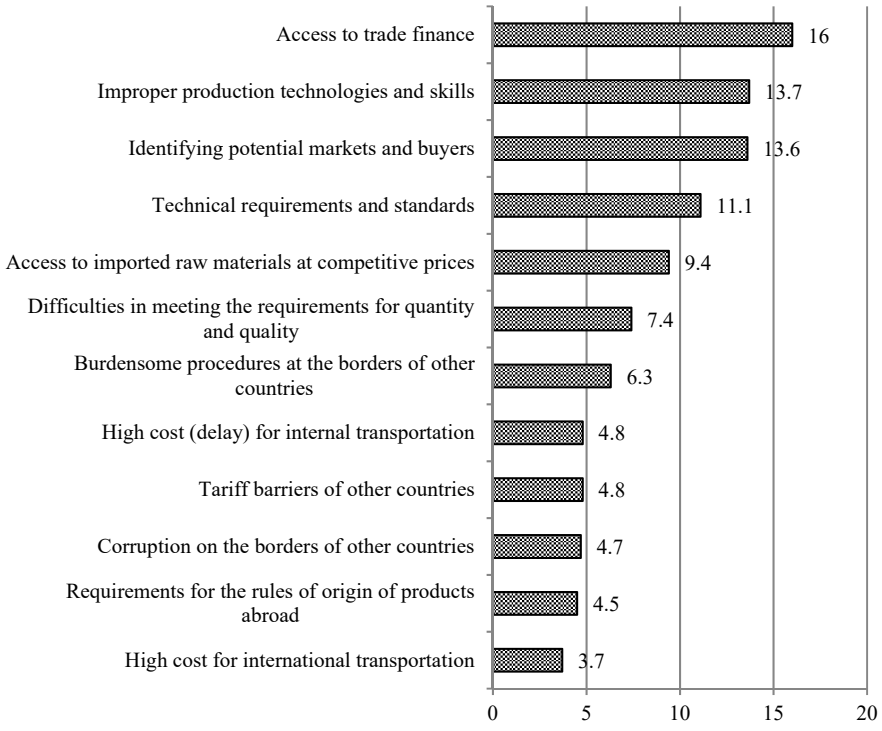
Thus, on the basis of the conducted research, it is established that the level of local social responsibility at business structures of the agrarian sector of the Nikolaev area depends on their sizes and on the existence of a strategic approach. Thus, in large enterprises, as a rule, the level of local social responsibility is the highest (from 7 to 10 points). In medium-sized enterprises, the level of local social responsibility is at a sufficient level (from 4 to 6 points, and in small (micro-enterprises), there is a basic level of local social responsibility (from 0 to 3 points)). However, there are some isolated positive manifestations both among medium-sized enterprises of the agricultural sector – there is not only a sufficient level, but also high (one enterprise), and among small (micro-enterprises) of the agricultural sector there is not a basic level, but sufficient (five enterprises).

The priority task for agricultural enterprises is to increase the level of social responsibility in the context of compliance with product quality based on certification, since a condition for entering foreign markets is the proper certification of exported products.

The foreign economic policy aimed at forming new and sustainable existing competitive advantages of agricultural producers should be aimed not only at concluding and implementing international agreements, but also be consistent and effective in maintaining the internal competitiveness of agricultural producers through the implementation of tariff and non-tariff exports, imports of agricultural products and products for agriculture. However, there are a number of problematic factors for exports from Ukraine (Figure 3).

Figure 3

The most problematic factors for exports to Ukraine, %



Source: constructed using the materials of GS Fedoseeva.

At the same time, the export situation itself is purely formal in terms of a set of procedures, the complexity, duration and cost of which can be a barrier for exporters. Within the WTO, the issue of micro, small and medium-sized enterprises was not on the agenda of trade negotiations. Only a few WTO agreements contain provisions that affect the reduction of

trade costs for IHR (Agreement on Technical Barriers to Trade, Agreement on Sanitary and Phytosanitary Measures, Agreement on Trade Facilitation).

5. Discussion

The strategic goals of the development of small businesses in a market environment are: creating favourable conditions that stimulate trade and the development of social responsibility for export diversification; development of business and trade support services that can increase the competitiveness of enterprises, including small ones (improvement of the mechanism of coordination of trade support institutions involved in trade policy and export development, strengthening the network of institutions providing business and trade support services to exporters); improving the skills and competencies of enterprises, in particular small ones, necessary for participation in international trade, etc. Maintaining a sufficient level of social responsibility of small agricultural businesses will allow them to become full participants in foreign markets and improve the country's export potential. At the same time, an important component of small business development is the focus on the innovative component of goods and services exported by small businesses.

6. Conclusion

Thus, the development of small agrarian business of Ukraine in the market environment requires a comprehensive analysis of factors that have a significant impact on it: the number of small agrarian businesses and their export operations support for exporters of Ukrainian products at the state level; level of local social responsibility; risks inherent in export transactions in a market environment.

Taking into account the forecast results, it has been found that the number of small agricultural businesses in general (including enterprises engaged in export operations) tends to increase, which indicates a positive dynamic in a pandemic. It has been found that the Office for Export Promotion, which promotes the development of small businesses in a market environment, was established to properly support exporters of Ukrainian products. It has been proved that export operations of small agricultural enterprises should be carried out, taking into account the standards of the external market space with observance of socially responsible components.

It is proved that export operations of small agricultural enterprises should be carried out, taking into account the standards of the external market space with observance of socially responsible components. On the example of enterprises of Mykolayiv region, it is substantiated that small agrarian business entities currently have a sufficient and high level of social responsibility, but only those enterprises that will promote and support the principles of LSV will be able to achieve effective development in a market environment.

Problem factors for exports need to be addressed, namely: access to trade finance, inadequate production technologies, identification of potential markets and buyers; technical requirements and standards. It needs to strengthen assistance to small businesses in access to

information, to implement the WTO Agreement on Trade Facilitation, taking into account small businesses, to involve them in regulatory activities in the field of trade.

Taking into account the above factors of influence on small agricultural business entities will contribute to the effective development and achievement of competitive advantages in the market environment.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES

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DOMESTIC INVESTMENT AND CAPITAL FLIGHT NEXUS IN NIGERIA: EMPIRICAL EVIDENCE FROM NEW DATA SET[6]

This study investigated the impact of capital flight on domestic investment in Nigeria. The data for the study were mainly sourced from CBN statistical bulletins for the period 1981 to 2017. However, the capital flight data series used in this analysis were obtained from new estimates of capital flight from the Political Economy Research Institute (PERI) at the University of Massachusetts as constructed by Ndikumana and Boyce. The Auto-Regressive Distributed Lag (ARDL) bounds test approach was adopted for the study. The result showed that capital flight significantly decreases domestic investment in both the short run and long run. Other variables found to have a significant effect on domestic investment include credit to the private sector and inflation rate. With these findings, the study, therefore, recommended that policymakers in Nigeria should consistently evolve policy measures that will curtail capital flight and make the economy competitive and more attractive for domestic investment. Others include anti-inflationary policies, strengthening anti-graft agencies to improve their effort in tackling laundering of public funds and the maintenance of more stable macroeconomic indicators which allow foreign capital inflow so as to boost private domestic investment.
Keyword: Capital flight; Domestic investment; Credit
JEL: E22; F21; F41

1. Introduction

Capital flight has been a major challenge facing developing countries. The majority of these countries have struggled tremendously to be able to save up adequate capital of their own to

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aid domestic investment and push economic growth, but despite their efforts; these countries are still faced with the undesirable turnout as their effort has been severely influenced by the legal and illegal escape of domestic capital abroad (Ndikumana, Boyce, 2021). For a developing country such as Nigeria, the inherent need for adequate capital formation cannot be overemphasized, and the consequences of persistent outflow of local capital away from Nigeria is undeniable, given a look at the sluggish progress in most of the economic sectors due to lack of adequate investment.

.In Nigeria, the continuous shortfall in investment which could be attributed to poor investment climate, unstable polity, erratic policy changes and weak military and civilian governance, has greatly affected sustainable production and, as a result, limited the ability of the economy to reach its full economic potentials in terms of growth and development (Isaac et al., 2021; Orji et al., 2021). However, for any developing economy to find itself in this undesirable state where the domestically generated capital consistently flow out of the economy to find solace abroad leaves much to be desired. Such an economy will face a huge drop in autonomous investment, and output generation will suffer immensely as infrastructure deteriorates (Anthony-Orji et al., 2020; Ekeocha et al., 2021). Considering the state of infrastructural deficit facing Nigeria, the capital needed to establish, restore and renovate infrastructure is rarely available domestically, and in most cases, when sourced from abroad at some expense, the fund will be siphoned, thereby creating a wide gap in the nation's external debt.

In the Nigerian case, some of the efforts by Nigerian leaderships to curb capital flight and illicit financial flows over the decade include the establishment of the Economic and Financial Crime Commission by the Obasanjo regime. This effort was to dictate and prosecute financial crime offenders and help ensure sanity in financial-related issues, the introduction of a single windows trade platform in all of the country's ports of entry and ensuring company registration linking the Federal Inland Revenue Service (FIRS) to the Corporate Affairs Commission (CAC) website to be able to gain a proper monitory channel. Others include the introduction of the Voluntary Assets and Income Declaration Scheme (VAIDS), a tax amnesty scheme for tax offenders; the Bank Verification Number (BVN) scheme; enactment of law granting independence to the National Financial Intelligence Unit against money laundering and related crimes. Also, the government, in its bid to win the fight on capital flight, went further to sign a multilateral convention treaty to implement measures in order to prevent base erosion and profit shifting as well as common reporting standard multilateral competent authority agreement to continue the convention on mutual assistance in tax and tax-related matters. As part of the effort to check and recover illicit capital flow, the Nigerian government also hired a leading international asset tracking and investigation agency to trace illicit flows and assets from Nigeria to developed nations (Victor, 2016).

However, despite the efforts of both international and local financial authorities in an attempt to eradicate capital flight from Nigeria, the statistical outlook still indicates little or no success. CBN (2018) indicates that Nigeria recorded a massive capital flight on an average of about US$32 billion from 2004 to 2007, US$47.4 billion from 2008 to 2010. It increased massively to an average of about $78.2 billion between 2011 and 2014. In 2015 and 2016, it recorded an illicit flow of about US$14.5 billion and US$ 9.3 billion, respectively. Figure 1 (in Appendix) is an indicator of the state of capital flight in Nigeria compared to Mali and

Rwanda, from 2010 to 2018. The figure illustrates the amount of capital flight from selected African countries, with Nigeria ranking highest with an average of about US$ 14034.4 million in 2018. On the other hand, Figure 2 (in Appendix) depicts the declining level of domestic investment as a percentage of GDP in Nigeria. The global financial crisis and increase in capital flight could be the major causes of the decreasing domestic investment witnessed in the economy in the past decade, among other reasons.

Figure 2 indicates that domestic investment as a percentage of GDP was at 16.19% in 2011, and it declined to 14.91% and 14.9% in 2012 and 2013, respectively. It increased to 15.8% in 2014 and then declined to 14.48% and 13.62% in 2015 and 2016. The decline continued to 13.24% in 2017 and 12.93% in 2018. Though this poor performance can be attributed to so many factors, but inadequate domestic savings as a result of capital flight cannot be exonerated to have played a vital role. This pitiable performance of domestic investment and the persistent escape of capital from Nigeria despite numerous policy measures adopted by the federal government and financial authorities to ameliorate the situation is not desirable, and these facts dominated the motivation behind this study. On this premise, there is an inherent need to do more empirical investigation by looking at some questions not yet investigated in the extant literature as related to the effect of capital flight on domestic investment. Specifically, this study focuses on estimating the impact of capital flight on domestic investment in Nigeria within the period of 1981 to 2017. The capital flight data series used in this analysis are obtained from new estimates of capital flight from the Political Economy Research Institute (PERI) at the University of Massachusetts, which were constructed by Ndikumana and Boyce (2018). Others were sourced from the Central Bank of Nigeria Statistical Bulletin. The structural arrangement of the rest of the study is as follows; section 2 summarizes the reviewed literature, while section 3 focuses on the methodology. Section 4 proposes a result presentation and discussion of findings, while section 5 focuses on conclusion and policy recommendation.

2. Brief Review of Literature

2.1. Theoretical Literature

2.1.1. The Investment Diversion Theory

The theory postulates that due to macroeconomic and political uncertainty in developing countries and the simultaneous existence of better investment opportunities in advanced countries like foreign interest rate, a wide array of financial instruments, political and economic stability, favourable tax climate and secrecy of accounts. Some corrupt leaders and bureaucrats usually siphon scarce capital resources from their countries. These funds are therefore not available for investment, low economic growth, a decline in employment, increase in dependency ratio and high death rate. These negative macroeconomic effect in these countries sometimes motivates the necessity to borrow from abroad in order to reactivate the domestic economy, which therefore further siphon the domestic economy, thereby perpetrating external depending and indebtedness. The liquidity constraint crowding-out effect may result in the depreciation of domestic currency if the authorities are operating a floating exchange rate system (Ajayi, 1992). An attempt to defend the exchange rate at this

time leads to a loss of international reserves. The investment diversion thesis provides one of the well-known negative consequences of capital flight in the countries involved.

2.1.2. The Debt-Driven Capital Flight Theories

This thesis states that capital flight reduces the incentive to save and invest. The assumption here is that with large foreign debt, there is an expectation of exchange rate devaluation, fiscal crises, and the propensity of the crowding out of domestic capital and expropriation of assets to pay for the debt. The debt-driven thesis and the investment-driven thesis together suggest interdependency between capital flight, growth and external debt, with the linkage being mutually reinforcing. Capital flight leads to poor growth, which calls for the necessity to borrow in order to promote growth. Further borrowing or indebtedness promotes capital flight will, in turn, lead to poor economic growth and the cycle continues (Akani et al., 2016).

2.2. Empirical Literature

Although, empirical evidence showed that a series of research works had been carried out on the capital flight, but most of these studies focused on the determinants of capital flight, different measures of capital flight and also based on our knowledge, none of these studies has quantitatively investigated the impact capital flight could have on domestic investment. Other studies have also investigated the relationship between domestic investment, private investment and other variables, but not much have been done on their relationship with capital flight using the recent data we are adopting for this study (Orji et al., 2015a, 2015b). For example, Cuddington (1986) used a portfolio adjustment model to study capital outflow for four countries, namely; Uruguay, Venezuela, Mexico and Argentina, which was considered to be among the major flight countries, to ascertain the economic determinant of capital flight from the resident economy. The study suggested that factors such as foreign and domestic interest rate, inflation rate, among others as key agents in determining capital flow. From the empirical result, Argentina and Uruguay lagged real exchange rate and lagged error of the model were correlated with capital flight, Mexico was found to have a highly correlation between lagged capital flight and overvaluation of the exchange rate joined with the disbursement of public debt. Though, the result showed that the above findings are not statistically significant. The empirical result also showed that capital flight in Venezuela is mostly determined by the overvaluation of exchange rate and foreign interest which are both statistically significant.

Another study that adopted the portfolio choice model is the study by Quan and zark (2001) that analyzed forty-one (41) developing countries using a data that covers the duration of 16 years. The study related capital flight and rate of return differential, including risk aversion, financial risk, political risk and policy risk. The empirical result presented that above mentioned three risks have a significant impact on capital flight. Gachoki (2013) examined the impact of capital flight on private investment in Kenya. The study summarized the undermining effect of capital flight on private investment adopting ordinary the least square method. It found out that capital flight has a negative effect on private investment while real interest rate, the ratio of private credit to GDP, change in terms of trade and external debt

have a significant effect on private investment. Liew, Mansoramd & Puah (2016) carried out an empirical study on the macroeconomic determinant of capital flight in Malaysia using ADF and ARDF approach. The findings of the study suggested that the variables FDI, external debt and the stock market have a negative relationship with capital flight, whereas the findings indicated a positive relationship between capital flight and political risk.

Other literature includes Camara and Williams (2017) that used autoregressive distributive lag (ARDL) techniques to carry out a study on the short-run and long-run determinants of capital flight in Ghana. The study showed a negative but significant relationship between capital flight and Ghana's real GDP growth, whereas capital flight and lagged external debt is positively related. The study suggested that pro-growth policies and domestic borrowing should be encouraged. In the same accord, Lawal, Kazi, Adeoti, Osuma, Akinmulegun, Ilo (2017), used the Autoregressive Distributed Lag (ARDL) model to examine the impact of capital flight and its determinants on the Nigerian economy. The study used capital flight, current account balance, foreign direct investments, foreign reserve, inflation rate, external debt, and the real gross domestic product as variables. In summary, the findings indicated that there is a negative relationship between capital flight and economic growth.

However, the literature on domestic investment focused primarily on the effect domestic investment has on economic growth and other macroeconomic variables, affecting domestic investment without giving concise attention to the influence of capital flight on domestic investment. Oyedokun and Ajose (2018), investigated the impact of domestic investment on economic growth in Nigeria. The study used ARDL and ECM model after subjecting data sources from CBN statistical bulletin to cointegrating test which indicated a long-run relationship. The study discovered a positive and statistically relationship between domestic investment and economic growth. Ajayi and Kolapo (2018) examined the sensitivity of domestic private investment to macroeconomic indicators in Nigeria from 1986 to 2015. The study used ARDL and Engle-Granger Causality test to determine that private domestic investment is most sensitive to the money supply, gross domestic product and exchange rate in Nigeria. The Granger causality test revealed a unidirectional causality between money supply and domestic investment.

Das, Chowdhury & Islam (2021), tried to find the threshold point of institutional quality measures and their effect on the Bangladesh capital flight. The study adopted data from the WGI governance and ICRG databases for the period of 1989 to 2016 period. The result of the non-linear regression proved that up to a certain threshold level of institutional quality, interest rate differential reduces while economic growth stimulates net capital flight (NCF) of Bangladesh.

From the literatures reviewed, it is evident that most literatures on capital flight focused more on its determinant, impact on growth and method of capital flight measurement, while literatures on domestic investment focused on the impact on economic growth. Thus, this paper, therefore, contributes to the literature and fills this gap by investigating the impact of capital flight on domestic investment in Nigeria.

3. Methodology

The standard methodology is to calculate capital flight as the residual difference between capital inflows and recorded foreign-exchange outflows. Capital inflows consist of net external borrowing plus net foreign direct investment. Recorded foreign-exchange outflows comprise the current account deficit and net additions to reserves and related items. The difference between the two constitutes the measure of capital flight (Ndikumana, Boyce, 2001). However, the capital flight data series used in this analysis are obtained from new estimates of capital flight from the Political Economy Research Institute (PERI) at the University of Massachusetts, which were constructed by Ndikumana and Boyce (2018)[7]. The data set on capital flight is available for up to 30 African Countries, including Nigeria, from 1970 to 2018. Again, the time period covered in this analysis is from 1981 to 2017.

Data on Domestic Investment (INV), External Debt (EXTD), Inflation (INF), and Credit to Private Sector (CPS) are obtained from the Central Bank of Nigeria Statistical Bulletin (2018).

3.1. Model Specification

The model of this research paper is specified in a linear form and ranges from general to specific, in line with theory. This involves expressing the models in the mathematical form that will be used to ascertain the economic phenomenon empirically. In order to address our objective, this study will employ the Auto Regressive Distributed Lag (ARDL) bounds testing approach with a dynamic Error Correction Model (ECM).

We start by expressing the functional form of the relationships amongst the variables, as follows:

$$INV = f(CAPF, EXTD, INF, CPS) \qquad e.3.1$$

Where:

INV is a domestic investment;

CAPF is capital flight

EXTD is external debt

INF is an inflation rate

CPS is a credit to the private sector

Thus, we express e.3.1 in its mathematical form in e.3.2, then in econometric form by introducing an idiosyncratic error ε, and then take the natural log to linearize to e.3.3, such that:

[7] More details on the capital flight dataset for Africa and the methodology adopted by Ndikumana and Boyce (2018) in the calculations can be found at https://peri.umass.edu/capital-flight-from-africa.

$$lnINV_t = \beta_1 lnCAPF_t + \beta_2 lnEXTD_t + \beta_3 lnINF_t + \beta_4 lnCPS_t \quad \text{e.3.2}$$

$$lnINV_t = \beta_1 lnCAPF_t + \beta_2 lnEXTD_t + \beta_3 lnINF_t + \beta_4 lnCPS_t + ln\varepsilon_t \quad \text{e.3.3}$$

Therefore, the generalized form of the $ARDL(p,q)$ model for the objective is specified as follows:

$$lnINV_t = \psi_0 + \sum_{j=1}^{p} \beta_j lnINV_{t-j} + \sum_{i=0}^{q} \alpha_i lnCAPF_{t-i} + \sum_{k=0}^{q} \gamma_k lnEXTD_{t-k} + \sum_{m=0}^{q} \varphi_m lnINF_{t-m} + \sum_{n=0}^{q} \emptyset_n lnCPS_{t-n} + ln\varepsilon_t \quad \text{e.3.4}$$

As $j = 1,2,\dots,pandi, k, m, n = (0,1,2,\dots,q)$

Where ψ_0 is the constant and$\beta_j, \alpha_i, \gamma_k, \varphi_m, \emptyset_n$, are the parameters to be estimated and ε_t is the white noise error term.

To perform the bounds test for the co-integration, the conditional $ARDL(p,q)$ model is specified thus:

We have the generalized form of the $ARDL(p,q)$ model specified as follows:

$$\Delta lnINV_t = \sigma lnINV_{t-1} + \delta lnCAPF_{t-1} + \theta lnEXTD_{t-1} + \Omega lnINF_{t-1} + \Psi lnCPS_{t-1} + \sum_{j=1}^{p} \beta_j ln\Delta INV_{t-j} + \sum_{i=0}^{q} \alpha_i ln\Delta CAPF_{t-i} + \sum_{k=0}^{q} \gamma_k ln\Delta EXTD_{t-k} + \sum_{m=0}^{q} \varphi_m ln\Delta INF_{t-m} + \sum_{n=0}^{q} \emptyset_n ln\Delta CPS_{t-n} + ln\varepsilon_t \quad e.3.5$$

The hypotheses for the bounds-test are that the coefficients of the long-run equations are all equal to zero against the alternative that they are not, as stated below:

$$H_o: \beta_j = \alpha_i = \gamma_k = \varphi_m = \emptyset_n = 0$$

$$H_1: \beta_j \neq \alpha_i \neq \gamma_k \neq \varphi_m \neq \emptyset_n \neq 0$$

The short-run model of $ARDL(p,q)$ is specified if and only if, we are unable to reject the null hypothesis (i.e. there is no co-integration), as stated below:

$$\Delta lnINV_t = \psi_0 + \sum_{j=1}^{p} \beta_j ln\Delta INV_{t-j} + \sum_{i=0}^{q} \alpha_i ln\Delta CAPF_{t-i} + \sum_{k=0}^{q} \gamma_k ln\Delta EXTD_{t-k} + \sum_{m=0}^{q} \varphi_m ln\Delta INF_{t-m} + \sum_{n=0}^{q} \emptyset_n ln\Delta CPS_{t-n} + ln\varepsilon_t \quad e.3.6$$

We can then specify both the short-run and long-run model, which is the error correction model (ECM) if we are able to reject the null hypothesis (i.e., there is co-integration). The error correction model (ECM) representation is specified as:

$$\Delta lnINV_t = \Phi ECT_{t-1} + \sum_{j=1}^{p} \beta_j ln\Delta INV_{t-j} + \sum_{i=0}^{q} \alpha_i ln\Delta CAPF_{t-i} + \sum_{k=0}^{q} \gamma_k ln\Delta EXTD_{t-k} + \sum_{m=0}^{q} \varphi_m ln\Delta INF_{t-m} + \sum_{n=0}^{q} \emptyset_n ln\Delta CPS_{t-n} + ln\varepsilon_t \quad e.3.7$$

Where Δ is the first difference operator; Φ is the speed of adjustment parameter with a negative sign to show that there is a convergence in the long run.

In general, the outcome of the bounds-test indicates whether or not there exists a long-run relationship among variables in the model. This dynamic error correction model (ECM) is derived from ARDL model through a simple linear transformation. That is, the ECM integrates the short-run dynamics represented by $\sigma, \delta, \theta, \Omega,$ and Ψ with the long-run equilibrium without losing the long-run information represented with; $\beta_j, \alpha_i, \gamma_k, \varphi_m, and \emptyset_n$.

And p is the maximum lag order of the dependent variable, while q is the maximum lag length of the explanatory variables.

3.2. Justification of the Model

This study employed the autoregressive distributed lag (ARDL) model because of its dynamism; that is, the ARDL model is a model containing the lagged value(s) of the dependent variable, the current and lagged values of regressors or explanatory variables, unlike static models. ARDL model uses a combination of endogenous and exogenous variables, unlike a VAR model that's strictly designed for endogenous variables. And the study is interested in the behaviour of our endogenous variables given the exogenous variables.

ARDL model is a good alternative when Engle and Granger or the two-step procedure breaks down. That is, in time-series analysis, the error term usually suffers from the problem of autocorrelation because the series tends to co-move and there is a possibility of endogeneity. These problems of the static model stated above will render the Engle and Granger or two-step procedure impotent or ineffective and by this, Auto-Regressive Distributed Lag (ARDL) model will be employed to simultaneously account for the long-run and short-run relationship.

This model can also be applied when the variables are of a different order of integration (Pesaran, Shin, 1998). In other words, independent variables could be integrated at order zero, order one, a combination of orders thereof or mutually cointegrated and avoid problems such as spurious relationships, resulting from non-stationary time series data. ARDL model is relatively more efficient in the case of small finite sample data sizes, by employing the ARDL technique; unbiased long-run estimates are obtained. In the ARDL model, the lag length for $p, q,$ may not necessarily be the same, unlike the VAR model, which must be of equal lag length. With an error correction model (ECM), there will not be problems of spurious regression because all the variables that enter the model are stationary, and ECM captures both the short-run and long-run relationship.

This model is appropriate in capturing all the objectives of this study given the principle of parsimony which suggests that we would keep our regression model as simple as possible in as much as we can explain our dependent variable substantially. In general, employing another sophisticated model will negate the principle of parsimony which we have just stated.

4. Results and Discussion of Findings

4.1. Unit Root Tests

Table 1

Result of Augmented Dickey-Fuller unit root test of the variables

	Level Form			First Difference			
Variables	*5% critical value*	*ADF test statistics*	*p-values*	*5% critical value*	*ADF test statistics*	*p-values*	*Order of integration*
CAPF	-3.067670	-3.957110	0.0393	-2.967767	-4.122274	0.0359	I(1)
EXTD	-2.951125	-2.085071	0.2516	-2.951125	-3.348964	0.0203	I(1)
INF	-2.948404	-3.251008	0.0253	-	-	-	I(0)
CPS	-3.276263	-5.030701	0.0326	-	-	-	I(0)
INV	-2.945842	-0.492972	0.8811	-2.948404	-4.347939	0.0015	I(1)

Source: Eviews 9 Output Result of Augmented Dickey-Fuller unit root test of the variables.

Hypothesis Testing

H0: $\delta = 0$ (the variables are non-stationary)

Decision Rule: reject H0 if the absolute value of ADF cal. > ADF tab.

The result of the Augmented Dickey-Fuller unit root test for the variables as indicated in the table above showed that inflation rate and credit to the private sector are stationary at a level with their ADF value greater than there critical value at 5%. Capital flight, external debt, gross domestic product and domestic investment got stationary after the first difference and are regarded to be integrated of order one.

Table 2

Result of the bound test (co-integration of the variables) for the objective
Null hypothesis: No long-run relationship exists

F-statistic	5.499347		
	Critical Value Bounds		
Significance	|0 Bound	|1 Bound	Decision
10%	2.45	3.52	*Cointegrated*
5%	2.86	4.01	*Cointegrated*
2.5%	3.25	4.49	*Cointegrated*
1%	3.74	5.06	*Cointegrated*

Source: Eviews 9 Output for the result of the bound test (co-integration of the variables).

The result of the bound test presented in Table 2 shows that the value of the F-statistic lies above the upper bound value of the Pesaran test statistic. This is an indication that the null hypothesis that there is no long-run association among the variables in the model is to be rejected. Therefore, there exists a long-run relationship among the variables in the model.

Table 3

Test for Multicollinearity

	CAPF	EXTD	INF	CPS
CAPF	1.000000	-0.016242	-0.318360	0.708137
EXTD	-0.016242	1.000000	-0.196302	0.257488
INF	-0.318360	-0.196302	1.000000	-0.278595
CPS	0.708137	0.257488	-0.278595	1.000000

The result of the multicollinearity test shows that the independent variables are not highly correlated, so there is no problem with multicollinearity in the model.

4.3. Result of Model Estimation

For the objective of this study, which investigated the impact of capital flight on domestic investment in Nigeria, the Autoregressive Distributed Lag model was used as specified, and the analysis was carried out in this section. This study is focused on the long-run and short-run relationships between capital flight and domestic investment in Nigeria, and between domestic investment and other control variables such as external debt, inflation rate and credit to the private sector. To validate the effectiveness of calculated parameters of the variables, the study employed an exact (true) level of significance (p-value) approach in testing the research hypotheses. This implies that any estimated coefficient with a corresponding p-value less than or equal to (< or =) 0.05 is considered statistically significantly different from zero. The conclusion shall therefore be that effect of the independent variable on the dependent variable cannot be ignored in the study. The table below is the result of the ARDL co-integration and long-run form.

Table 4

Result of ARDL Cointegration and Long-run
Dependent Variable: INV

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(CAPF)	-0.028139	0.011132	-2.527720	0.0176
DLOG(CPS)	0.390103	0.128862	3.027292	0.0054
DLOG(EXTD)	-0.004149	0.016075	-0.258104	0.7983
D(INF)	-0.002373	0.000956	-2.481829	0.0196
CointEq(-1)	-0.501971	0.106747	-4.702439	0.0001
Cointeq = LOG(INV) - (0.0561*LOG(CAPF) + 0.7771 *LOG(CPS) -0.0083*LOG(EXTD) -0.0047*INF + 0.0190)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(CAPF)	-0.056058	0.022252	-2.519189	0.0180
LOG(CPS)	0.777143	0.246304	3.155223	0.0039
LOG(EXTD)	-0.008265	0.031667	-0.261002	0.7961
INF	-0.004727	0.002243	-2.107256	0.0445
C	0.018994	0.179952	0.105550	0.9167

Source: Authors' computation from Eview 9.

4.3. Interpretation of Long-run and Short-run Results

Table 4.4 shows the regression results for the cointegrating and long-run coefficients for the first objective of this analysis. The coefficient of capital flight (CAPF) in the short run is -0.028139, and -0.056058 in the long run, with p-values of 0.0176 and 0.0180, respectively. This result shows a negative relationship between capital flight and domestic investment in both the short run and long run, indicating that in the short run, a percentage increase in capital flight will reduce domestic investment by 0.02% and by 0.05% in the long run. The p-values for the coefficients in short run and long run are lesser than the conventional 5% statistical level of significance, indicating that the results are statistically significant. This result agrees with the findings of Gachoki (2013) that examined capital flight on private domestic investment in Kenya, which indicated a negative but statistically significant relationship between capital flight and private domestic investment in Kenya.

The result for inflation rate indicated that in the short run, the inflation rate has a coefficient of -0.002373, with a p-value of 0.0196 in the short run, and a coefficient of -0.004727 and a p-value of 0.0445 in the long run. This implies that in the short run, a 1% increase in the inflation rate will decrease domestic investment by 0.2% in the short run and 0.4% in the long run. The p-value for both short-run and long-run coefficients indicates that the results are statistically significant at 5%. This conforms to the study of Ajayi and Kolapo (2018) on domestic private investment and macroeconomic indicators.

However, credit to the private sector (CPS) has a coefficient of 0.390103 in the short run, 0.777143 in the long run with p-values of 0.0054 and 0.0039, respectively, indicating that the result is statistically significant in the short and long run. External debt has a coefficient of -0.004149 in the short run, and -0.008265 in the long run. The p-values are 0.79883 in the long run, 0.7761 in the short run. This indicates that in the long run and short run, the coefficients were negative but statistically insignificant. The external debt variable shows that it has a negative relationship with investment. As earlier discussed, Nigerian external debt stock was about $29 billion in 1999 at the advent of democracy, but it further increased to about $32 billion in 2000 and then declined to about $31 billion in 2002. Owing to a several uncertainties and policy issues in the country, Nigeria's external debt further rose sharply to $39 billion in 2004. This was followed by a series of negotiations and agreements with the Paris Club that eventually led to the forgiveness of Nigeria's debt, thus bringing the entire external debt stock down to about $9.6 Billion as at 2006. Unfortunately, the gains of the debt forgiveness were wiped off by subsequent administrations as Nigeria's external debt stock has soared from about $9.6 Billion in 2006 to about $42.6 Billion in 2018. Currently, Nigeria's external debt profile is still rising as a result of bad governance and corruption. The sad part of the story is that the borrowed fund are not properly utilized as their effect on the gross domestic product is minimal, thereby creating another problem of servicing this debt.

The cointegrating equation is negative with an associate coefficient of -0.501971, which indicates that about 50% of any movement into disequilibrium is corrected for within one period. Given a p-value of 0.0001, this indicates that the coefficient is highly significant.

4.3. Post estimation test result

4.3.1. Breusch-Godfrey Serial Correlation LM Test

This test employed the Breusch-Godfrey Serial Correlation LM Test to examine the tendency of serial correlation in the error term. The result is presented below

Table 5

Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.199363	Prob. F(2,18)	0.4602
Obs*R-squared	0.20663	Prob. Chi-Square(2)	0.3105

Hypothesis:

H0: $\mu_{1,} = \mu_2 = \mu_3 \neq \cdots \mu_p \neq 0$

Decision Rule: Reject H0 if the Fcal<Ftab; otherwise, do not reject. Or reject H0 is the P-value is greater than 0.05.

The result presented above shows that the probability of the F-statistics, which 0.4602 is greater than 0.05(5%). Also, the observations times R-squared (0.20662) is less than the chi-square P-value (0.3105). Hence, we reject the H0 and conclude that the model has no serial correlation.

4.3.2. Heteroscedasticity Test

To show the consistencies in the error term from one period to another entails us to conduct the heteroscedasticity test. The Breusch-Pagan-Godfrey heteroscedasticity test will be used to carry out this test. The result is shown in the table below. The null hypothesis is that the error term is homoscedastic.

Table 6

Heteroscedasticity result

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.127291	Prob. F(13,20)	0.0023
Obs*R-squared	14.76774	Prob. Chi-Square(13)	0.2248
Scaled explained SS	8.93695	Prob. Chi-Square(13)	1.1251

Source: Eviews 9 Output for Heteroscedasticity Test.

Hypothesis:

H0: $\sigma_1 = \sigma_2 = \sigma_3 \neq \cdots \sigma_p = \theta$ (Homoscedastic)

Decision Rule: Reject H0 if the Fcal<Ftab, otherwise, do not reject. Or reject H0 is the P-value is greater than 0.05.

From the result presented above, shows that the probability value of the Obs*R-square (0.2248) is greater than 0.05, this implies that the variance of the error term is constant. In

that, we do not reject the null hypothesis of homoscedasticity and we conclude that the error term is constant overtime.

4.3.3. Specification Error Test

The Ramsey regression equation specification error test (RESET) test is a general specification test for the linear regression model. It tests whether non-linear combinations of the fitted values help explain the response variables. The null hypothesis of this test is that the model is correctly specified.

Table 7

Ramsey RESET Test

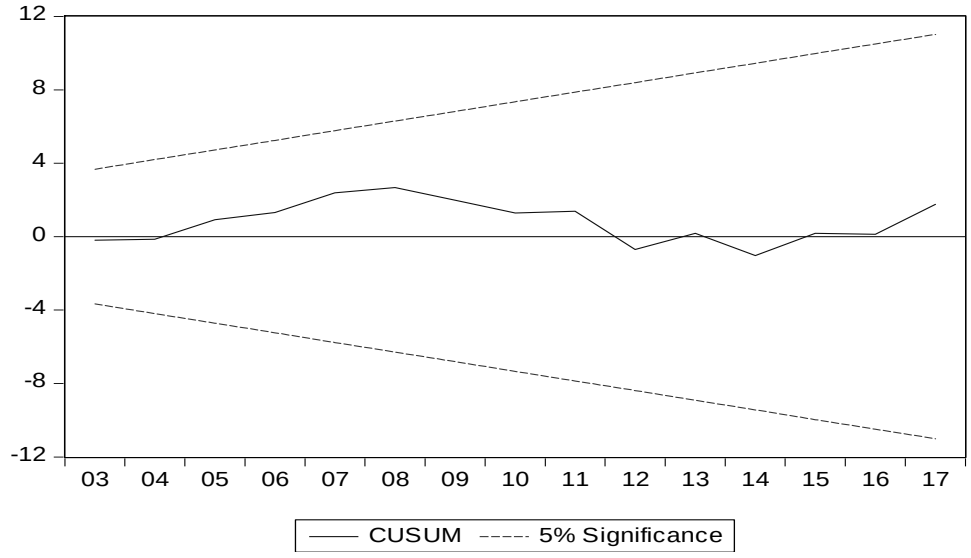
	Value	Df	Probability
t-statistic	1.309592	19	0.2404
F-statistic	1.57259	(1, 19)	0.2404

4.3.4. Diagnostic Test

The stability of the short-run model was tested using the CUSUM test. The idea behind this test is to reject the hypothesis of model stability if the blue line lies significantly outside the dotted red lines; otherwise, the model is said to be stable. The null hypothesis for the test is that the model is not stable. The result of this test is presented in Figure 3.

Figure 3

CUSUM TEST



The CUSUM test result above showed that the blue line lies significantly inside the dotted red line, thus we reject the null hypothesis and accept the alternative, which implies that the model is stable.

5. Conclusion and Policy Recommendation

The issue of capital flight has been a recurrent point of deliberation and has attracted the attention of many scholars, policy analysts and successive governments. This can be attributed to the adverse effect of capital flight on sustainable economic growth as it has limited the progress of different sectors of the economy. The findings of this study have improved our understanding of the impact of capital flight on domestic investment. It, therefore, concludes that there exists a negative relationship between capital flight and domestic investment. This may be attributed to the fact that more capital flight drains a country's capital level whose investors depend to get finances for investment. Thus as more capital is lost, less is left in a country for the investors to use for investment leading to private investment decline. According to Gachoki (2013), other indicators such as inflation rate and external debt significantly affects domestic investment and gross domestic product. Inflation and external debt is found to have an inverse relationship. This shows that as the inflation rate and external debt were increasing, the corresponding values of domestic investment were declining. On the other hand, credit to the private sector exhibits a positive relationship with domestic investment and gross domestic product. With reference to these findings, the following policy direction is recommended.

Firstly, macroeconomic stability should be the focus of economic reforms, together with the elimination of structural distortion and enhancement of a more favourable investment environment to boost domestic production capacity. This can be achieved by adopting anti-inflationary policies like non-expansionary monetary and fiscal policies. This recommendation is based on the inflation rate coefficient estimated, which is negative and statistically significant. Secondly, Strategic measures should be adopted in terms of foreign direct investment inflow management to avoid possible leakages of such capital inflow out of the economy as capital flight. The study, therefore, recommends the use of appropriate policy measures that will stimulate the availability of more capital for investment, since the increase in credit to the private sector is most likely going to increase domestic investment as the estimated coefficient indicated. Thirdly, the issue of corruption should be tackled in the utilization of external debt. All monies borrowed should be strictly monitored by the anti-graft agencies to ensure they are properly utilized for investment purposes and infrastructural facilities in the economy and not just for consumption and criminal diversion.

Finally, the government should strengthen anti-graft agencies to improve their effort in tackling the laundering of public funds. This is to ensure that all the channels through which public office holders launder money abroad are stopped. In addition, international anti-corruption laws should be implemented to reduce the quantum of laundered money. An enabling financial and macroeconomic environment that would minimize domestic economic uncertainty, reverse capital flight and attract foreign direct investment should also be created.

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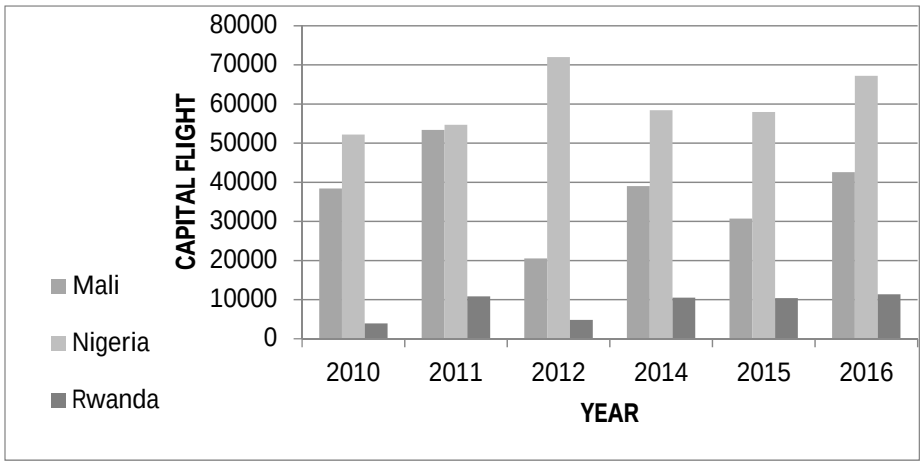
APPENDICES

Figure 1

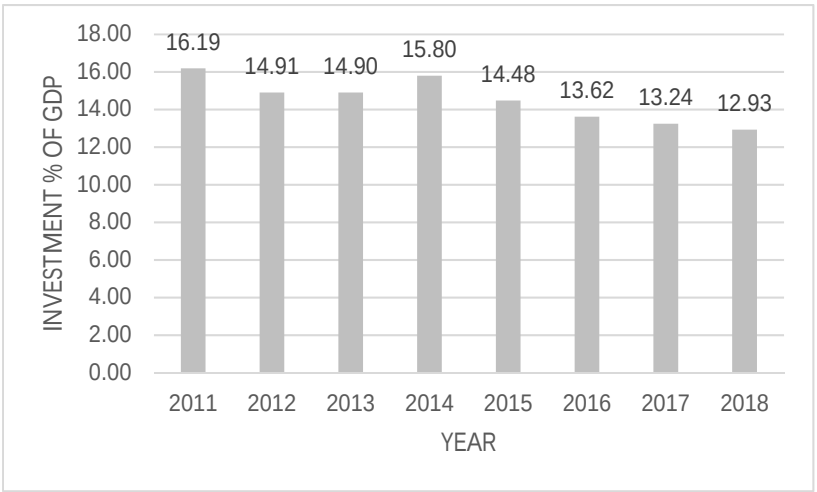
Capital Flight from Selected African Nations (US $ millions)



Source: World Bank Indicator (2018).

Figure 2

Nigerian domestic investment % of GDP



Source: World Bank Development Indicator (2016).

SUMMARIES

Milkana Mochurova, Stoyan Totev

INCLUSIVE DEVELOPMENT – NATURE, ASPECTS, MEASUREMENT

The article makes a critical analysis of the understanding of the concept of "inclusive development". It is noted that this term and its synonyms became very popular and fashionable at the beginning of the 21st century, which led to their overuse and, thus, in a sense, to their deprivation of content. A critical review has been done on indicators and indices at a national and regional level. The relevance and necessity of applying a clear methodology for the assessment of inclusive development are justified in the light of the analysis that was made. A methodology for defining and assessing inclusive regional development that meets necessary requirements is proposed and justified by the authors of the study. It is based on understandable and easy to define criteria for the assessment of inclusive development. Finally, some general results and conclusions from the methodology are presented.
Keywords: inclusive development; methodology; Bulgaria
JEL: R11; Q57; R58

Ali Veysel

NON-FINANCIAL INFORMATION DISCLOSURES BY BULGARIAN LISTED COMPANIES

The study is dedicated to the disclosures in the non-financial statements (integrated reports) by the Bulgarian listed companies. It includes an analysis of the aims and the guidelines for the elaboration of non-financial reporting, the requirements for preparing, and the legal provisions. They suggest that the current European Union legislation and the Bulgarian laws are not sufficient for the presentation of appropriate non-financial information. In this regard, an empirical research into the quality of non-financial statements in Bulgaria is conducted. The summarised results could be used for improving the disclosures.
Keywords: non-financial information; integrated reports; Bulgarian listed companies
JEL: G18; M41; M48

Maria Markova

THE COMPANY DIGITAL COMPETITIVENESS FOCUSED ON INTELLECTUAL PROPERTY RIGHTS – CONCEPT, ASSESSMENT AND STRATEGY

The method of analysis of the current status of of the IP portfolio of a company and the IP portfolio as a factor for obtaining and sustaining the company competitiveness. The aim is to present the main points of the scientific thesis of the company digital competitiveness focused on intellectual property rights (IPR).
This article presents definitions, content and its general management aspects for the following terms:
1. a concept for 'company digital competitiveness';
2. the place and the importance of intellectual property rights for the company's digital competitiveness;
3. a model for assessment of the company's digital competitiveness focused on intellectual property rights as apart from a strategy to achieve digital competitiveness of the company;

4. a method for the formation of the company's digital competitiveness strategy, focused on intellectual property rights.

The paper presents the point of view for the main term 'digital competitiveness' as general and focuses on IP rights as an IP portfolio of the company, including the company's competitiveness terms and economic indicators for it.

Special attention is paid to IP rights as a factor for the company's digital competitiveness and IP portfolio of a company as a content and as a structure and the methods of assessment of the company's current status and planned future value.

The final part presents examples for IP rights owned by successful companies known well all over the world as the practical issue of the thesis.

Keywords: IP rights; IP portfolio; company digital competitiveness
JEL: K49

Nurudeen Abu, Joseph David, Musa Abdullahi Sakanko, Ben-Obi Onyewuchi Amaechi

OIL PRICE AND PUBLIC EXPENDITURE RELATIONSHIP IN NIGERIA: DOES THE LEVEL OF CORRUPTION MATTER?

We employ the non-linear autoregressive distributed lag (NARDL) approach to examine if the oil price and public expenditure relationship are dependent on the level of corruption using Nigeria's quarterly data during the 1996-2019 period. The result of the NARDL-bounds test to co-integration demonstrates that there is a long-run relationship between the variables, and we found evidence of long-run asymmetry in this relationship. The estimation results indicate that both positive and negative shocks to oil price have a significant positive effect on public expenditure in the long run, and the impact of oil price on public expenditure depends on the level of corruption. In addition, the marginal effect of oil price on public expenditure varies at different levels of corruption. Other important factors that drive public expenditure in Nigeria, in the long run, include spending on internal security and debt service. Based on these outcomes, we proffer some policy recommendations.

Keywords: oil price; public expenditure; corruption; NARDL; Nigeria
JEL: E62; E64; H50; D72; D73

Irina Bulkina, Marharyta Chepeliuk, Andrii Kripkyi

THE ROLE OF GLOBAL DIGITALIZATION IN THE STRATEGIC DEVELOPMENT OF THE ENTERPRISE

The article summarises the arguments and counter-arguments in the scientific debate on the impact of global digitisation on the economy, in terms of potential changes in the activities and further development of enterprises, as well as on the labour market as a whole. The main purpose of the study is to define the role of global digitalisation in the strategic development of the enterprise. The basic logic of this study is based on the assertion that digitisation is a boost in the development of an enterprise and the economy as a whole, and information and knowledge are strategic resources that increase their adaptability to the variability of environmental factors. Methods of analysis and synthesis, deduction and induction, and the search for cause-effect relationships were the methodological tools of research. The research period was the period of the COVID-19 pandemic, which has spanned the world since early 2020, as it has dramatically accelerated the development of a large group of ICT services and online services. The article presents the results of empirical analysis of the main trends in the labour market during the pandemic and their relation to the processes of digitisation and strategic development of enterprises.

Keywords: digitalisation; personnel competencies; knowledge development; personnel management; digital economy; strategic development
JEL: F63; M54; O33

Albena Vutsova, *Martina Arabadzhieva*

THREE EASTERN CASES OF YOUTH UNEMPLOYMENT TRENDS – BULGARIA, ROMANIA, SERBIA

The purpose of this paper is to conduct a comparative analysis of the youth unemployment situation in Bulgaria, Serbia and Romania, relatively similar to economic development and with different EU member state status. It analyses distinctions in the corresponding rates on a national level and makes an attempt to summarise skills required in these labour markets which young people need to improve.
Methodology: The article is a continuation of previous studies of the authors based on youth unemployment in Bulgaria and, in particular, the barriers before young people to enter the labour market successfully. The research focuses on trends of the levels of unemployment of young people during recent years using publicly available data from Eurostat as well as the skill mismatches which challenge youths to be more successful when starting their careers. The study gathers information from relevant scientific publications as well as from various reports, dedicated to this topic.
Findings: The article distinguishes between the different trends in youth unemployment, looking for specific reasons. It also suggests common barriers for young people to enter the labour market in the countries under review.
Practical implications: A clear view on the movement in unemployment rates amongst young people in neighbouring countries and the main barriers for them to start successful careers could be prerequisite for the countries commented to improve their policies towards management of this issue. Moreover, they could combine their efforts and create a synergetic effect trying to tackle the problem regionally.
Originality/value: The paper aims to outline common challenges of a few neighbouring countries in the Balkans and, as a result, formulates trends typical for those countries which could be applicable to the bigger part of the region. The study incorporates two points of view – from a national and individual perspective to analyse labour markets.
Keywords: youth unemployment; labour market; skills mismatch; Bulgaria; Romania; Serbia
JEL: J13; J24; J64

Kameliya Savova

EFFECTS OF COVID-19 IN THE FINANCIAL STATEMENTS FOR A YEAR OF GLOBAL PANDEMIC – EVIDENCE FROM BULGARIA

An important purpose of the financial statements is to communicate between the stakeholders and the reporting entity.
Performing such a function in a year of global instability is a challenge to provide reliable information on the effects of COVID-19.
The objective of the research is to assess on the basis of information in the financial statements for the year 2020 the impact of the Coronavirus pandemic on the liquidity, the revenue and the financial results of industrial enterprises listed on the Bulgarian Stock Exchange and their expected performance.
The research methodology is based on studying the effects of COVID-19 on the economic activity, an analysis of their manifestation in the activities of industrial enterprises, listed on the Bulgarian Stock Exchange, based on their published financial statements for the year 2020, summarising, comparing

and graphically illustrating the results for two reporting periods, a study of the management's assessment of the potential risks and the development of the individual enterprises next year.
The results and the conclusions of the study are: COVID-19 has a different impact on the revenue, liquidity, profits and losses of the enterprises in the extract; the usual dependencies in the dynamics of the studied sites are violated, the principle "going concern" is followed.
Keywords: effects of COVID-19; financial statements; profit/loss; revenue; liquidity; Bulgaria
JEL: M40; M41

Vladan Pavlović, Goranka Knežević, Radica Bojičić

THE IMPACT OF GENDER AND AGE ON EARNINGS MANAGEMENT PRACTICES OF PUBLIC ENTERPRISES – A CASE STUDY OF BELGRADE

The goal of this study is to investigate whether the gender and age of the director, the supervisory board chairman and other supervisory board members influence earnings management practices in public enterprises established by the Serbian capital city. We have found that the age of the directors and the age and gender of the board members appointed by the local authority are statistically insignificantly associated with earnings management practices. But the study reveals a huge gender inequality concerning the directors and supervisory board members appointed by the local authority and opens up a debate on whether supervisory board members are sufficiently qualified for the task assigned to them by Law. As a result of this research, we suggest several inputs for the ongoing public administration reform.
Keywords: earnings management; gender; age; supervisory board; public enterprises; Serbia
JEL: M41; M48; M14; G30; C33

Olena F. Androsova, *Natalia V. Katkova*

DIAGNOSTICS OF CORPORATE CULTURE ON MACHINE-BUILDING ENTERPRISES IN UKRAINE

The article identifies and classifies the factors influencing the formation of corporate culture on favourable and inhibitory factors. It was found that the effective influence on the corporate culture of machine-building enterprises is ensured by the availability and clear functioning of certain components of corporate culture, which can provide events that respect corporate traditions, respect for labour, intellectual, sports achievements; and spread corporate culture at the enterprise on internal and external environment. It was found that the main important components of corporate culture include: regulations, standards, organisational structure.
A methodological approach to the assessment of corporate culture on the basis of formalised and informal methods, taking into account expert assessment, is proposed. It takes into account the general style of leadership in the enterprise, management style, combines the essence of the enterprise, its strategic goals and criteria for success. The results of approbation of the specified approach at the Ukrainian machine-building enterprises are given.
Keywords: corporate culture; assessment methods; factors; strategic development; components; diagnostics
JEL: M14

Natalya Sirenko, Tetyana Lunkina, Alla Burkovska, Kateryna Mikulyak

PROSPECTS FOR THE DEVELOPMENT OF SMALL AGRICULTURAL BUSINESS ENTITIES IN THE MARKET ENVIRONMENT

One of the promising areas for creating a competitive market environment is the development of small businesses. Small businesses need to increase their competitive advantage over other market participants in order not to lose their place in the economic system, especially in a pandemic, while becoming drivers of economic growth.
The purpose of the study is to examine the factors influencing the behaviour of small businesses in the market environment during the epidemic by understanding the existing problems and strategic orientations of their activities. The article forecasts the number of small agricultural business entities in order to understand the problems and prospects for development in a market environment (using retrospective and statistical research methods); the directions of support for exporters of agricultural products have been given; the change in the dynamics of goods export by small enterprises has been analyzed (using the methods of economic and mathematical modelling), the level of social responsibility of agrarian business entities as a necessary element for the implementation of export operations in foreign markets (with a built self-organizing map). It has been proven that small business entities have a basic level of social responsibility, but in order to strengthen their competitive position and the need to enter foreign markets, enterprises need to improve to a sufficient level. It has been found that problematic factors for exports need to be addressed, namely: access to trade finance, inappropriate production technologies, identification of potential markets and buyers; technical requirements and standards. It has been substantiated that it is necessary to strengthen the assistance of small enterprises in access to information, implementation of the WTO Agreement on Trade Facilitation, taking into account the interests of small enterprises, their involvement in regulatory activities in the field of trade.
Keywords: development; agricultural sector; micro; small business; market environment; local social responsibility
JEL: Q12; Q13; Q14

Anthony Orji, *Kenneth Kama*, *Jonathan E. Ogbuabor*, *Onyinye I. Anthony-Orji*, *Ozoemena Stanley Nwodo*

DOMESTIC INVESTMENT AND CAPITAL FLIGHT NEXUS IN NIGERIA: EMPIRICAL EVIDENCE FROM NEW DATA SET

This study investigated the impact of capital flight on domestic investment in Nigeria. The data for the study were mainly sourced from CBN statistical bulletins for the period 1981 to 2017. However, the capital flight data series used in this analysis were obtained from new estimates of capital flight from the Political Economy Research Institute (PERI) at the University of Massachusetts as constructed by Ndikumana and Boyce. The Auto-Regressive Distributed Lag (ARDL) bounds test approach was adopted for the study. The result showed that capital flight significantly decreases domestic investment in both the short run and long run. Other variables found to have a significant effect on domestic investment include credit to the private sector and inflation rate. With these findings, the study, therefore, recommended that policymakers in Nigeria should consistently evolve policy measures that will curtail capital flight and make the economy competitive and more attractive for domestic investment. Others include anti-inflationary policies, strengthening anti-graft agencies to improve their effort in tackling laundering of public funds and the maintenance of more stable macroeconomic indicators which allow foreign capital inflow so as to boost private domestic investment.
Keyword: Capital flight; Domestic investment; Credit
JEL: E22; F21; F41