NIERÓWNOŚCI SPOŁECZNE A WZROST GOSPODARCZY

Social Inequalities and Economic Growth

Rzeszów 2021

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Economics of moderation. Towards sustainable development[2]

INTRODUCTION

Analysis of the literature tends to show limited consideration in the discourse of economic sciences concerning "moderation" (Giza, 2016, pp. 45–49). This research gap can be seen not only in the realm of investigation regarding the theories of economics and its related sciences, but it is manifested above all in the economic and everyday lives of modern people, dominated by hedonism, ubiquitous materialism and consumerism on the one hand, and, on the other, it shows the polarisation of the lives of societies, expressed through poverty, misery and limitations.

This publication addresses a very important topic, namely the economics of moderation – an emerging theory of modern economics, based on new pragmatism. This theory is a kind of complement to the philosophy of sustainable development, which can be understood as a "live idea". A live idea means one which can be implemented provided that societies live in "moderate wealth" in accordance with the theory of the "economics of moderation". The aim of the study is to set economics of moderation as a theory in the evolution of economic thought. To achieve the defined research aim, an attempt was made to answer the following research questions:

1. How should moderation be understood and what is its essence?
2. What do development economics and the economics of moderation have in common?
3. What changes does the modern world need to implement in order to turn back from the slippery slope?

In the research work, an analysis of the literature on the subject was used within the scope of research methods of social sciences in the field of analysis and criticism of the literature, as well as analysis and logical construction.

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From the wealth of nations…
to the economics of moderation
– The evolution of economic thought
in the context of development economics

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In the methodology of the empirical sciences, including economics and its related sciences, the concept of theory can be understood in three aspects, as:
1. a set of sentences explaining a given phenomenon that, together with the scientific laws and general hypotheses explaining them, forms a logically coherent unit of scientific knowledge;
2. a coherent system of theorems concerning a given phenomenon, comprising theoretical terms related to objects or properties which are directly unobservable;
3. a system of laws, general hypotheses and definitions which are logically and factually related, so that from the most general theorems, less general theorems can be derived, formulated in such a way that empirical testing (in this respect: falsification, confirmation and verification) is possible.

Assuming that the main task of the theory of empirical sciences – having epistemological values – is, first and foremost, explanation (diagnostic function) and prediction (prognostic function), and furthermore, taking into account the unreliability of types of reasoning adopted besides deduction (e.g. inductive, reductive or statistical reasoning), it is necessary to empirically check and validate[3] these theories. This is why, in the context of economic sciences, their ability to be practically applied is of such great importance.

Development economics is one of the leading theories of modern economics. Although theories of development have existed since the time of A. Smith, when his now classic work "An Inquiry into the Nature and Causes of the Wealth of Nations" was published, development economics as an "economic discipline" goes back to the 1950s (Bąkiewicz, Żuławska, 2010, p. 64; Piasecki, 2007, p. 7; Kozak, 2001, p. 8). In Figure 1, this period in the history of the development of economic thought has been shaded in grey.

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[3] Validation of theorems in the empirical sciences is understood as a dispute between inductivism and hypothetico-deductivism.
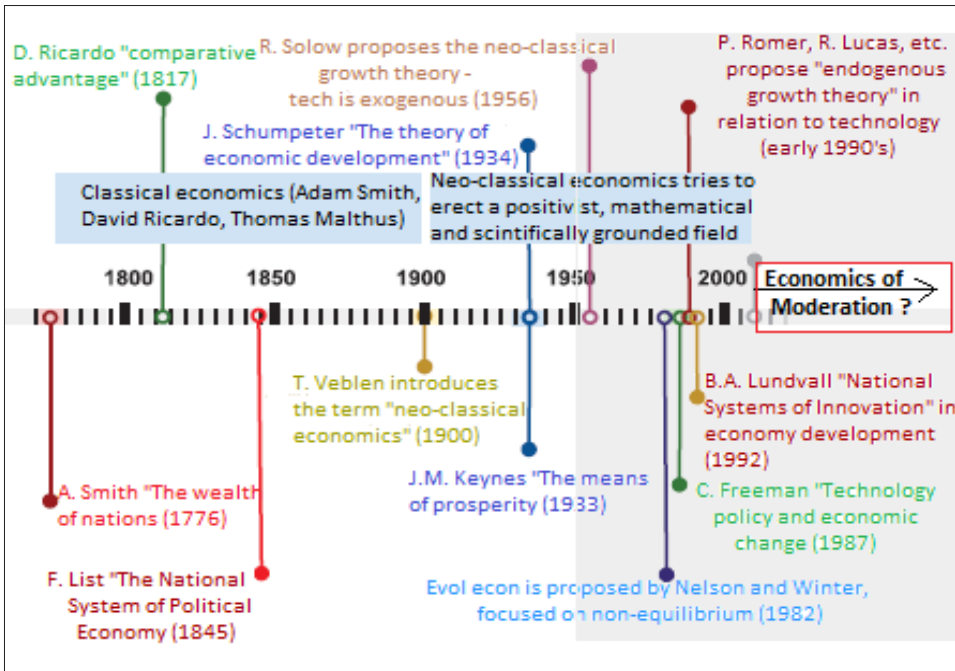
Figure 1. Timeline of the evolution of economic development research

Source: own elaboration based on: (Maldonado, 2012, p. 24).

The evolution of development economics can be divided into four basic periods:
1. the beginning of development economics, associated with rapidly unfolding decolonisation processes, reaching a high point in the 1950s and 1960s,
2. the outbreak of the energy and resource crisis in the 1970s, leading to the demand to introduce an international economic order,
3. the adoption of the United Nations Millennium Declaration in 2000, which is a kind of commitment that humanity should fulfil in order to effectively meet the challenges of the 21st century,
4. the establishment of the 2030 Agenda for Sustainable Development, including sustainable development goals.

Development economics can be classified according to various criteria, as shown in Table 1. Their analysis enables identification of the dichotomy of concepts regarding the causes and effects, as well as forecasts, regarding further economic development and instruments to be used in global development. However, regardless of theoretical disputes in this respect, it is important to work practically on creating suitable/effective tools to combat the threats in the global economy.

Table 1. Classification of theories in development economics according to selected criteria and division sources

No.	Criterion/authorship	Classification
1	axiological-historical criterion	– a group of theories with liberal roots, according to which the interests of societies and nations do not have to be mutually exclusive and, in the long run, can even be harmonious; – a group of theories of leftist-Marxist provenance, according to which the differences in the economic development of countries stem from acute class conflict, and as regards the population of colonial territories – also national conflict.
2	division of theories in development economics according to R. Piasecki	– neoclassical, – relating to structural imbalances, – radical, – Marxist.
3	division of theories in development economics according to Z. Krasucki	– neoclassical theories, – theories based on a linear model of economic growth, – structuralist theories based on two-sector backwardness of the economy and the bipolar nature of the world economy.
4	factors criterion according to G. Braun	– internal factors, – external factors, – external and internal factors, – global factors.
5	time criterion according to A. Bąkiewicz and U. Żuławska	– first-generation theories, – second-generation theories, – third-generation theories, – fourth-generation theories.
6	responsibility criterion according to M. G. Woźniak	– economic theories promoting the development of diffusion-polarisation, – economic theories in which the issue of responsibility in the context of planned and pursued economic development is emphasised.
7	needs criterion according to G. W. Kołodko	– theories of traditional economics which assume unlimited human needs, – the theory of new pragmatism – the "economics of moderation", according to which the volume of flows (human, natural, financial and material) should be adapted to the requirement to maintain a dynamic balance.

Source: own elaboration based on (Deszczyński, 2013, pp. 2–3; Woźniak, 2019, pp. 158–173; Kołodko, 2016, pp. 26–32).

Analysis of the literature on development economics inclines towards the formulation of the author's definition of this concept as "the leading economic thought, but also a specific doctrine of the end of the 20th century and the beginning of the 21st century, whose object of research is related to the observed

and growing imbalances in the global economy, including in the majority of its national economies in the context of natural, social and economic capital".

<center>Sustainable development towards a live idea</center>

The historical version of the concept of sustainable development goes back over 35 years, when the Brundtland Commission prepared a report entitled "Our Common Future". This report highlights the necessity to meet the needs of the current generation without reducing the development opportunities of future ones, which was to be achieved through integrated measures in the area of natural, social and economic development in the world. Although many years have gone by since the World Commission on Environment and Development formulated this goal, it has not been achieved, but on the contrary, as scientific research and statistics show and confirm, quality of life on Earth is not improving but deteriorating (this applies particularly to the environment, including biodiversity. Nature is of fundamental importance in this respect, because without this aspect, the other elements, i.e. the social and economic aspects would not exist – it is a *sine qua non* for the other aspects) (Kozhevina, Trifinov et al., 2020, pp. 1295–1304; Krivtsov, 2020, pp. 165–171; Sati, 2020, pp. 171–183).

As W. Sztumski rightly emphasises, sustainable development depends on social consensus on the most important issues of human/social life on a global scale. Its accomplishment requires consistent compliance with the principles of human coexistence in accordance with environmentalism, i.e. the principles of tolerance and synergy. As regards the first principle, its implementation is linked to the desire to live in peace amid the rapidly growing condensation of the environment, and, in particular, the increase in the world's population, while the second principle is a consequence of the need to preserve life and ensure the survival of the human species amid the progressive degradation of the natural and social environment (Sztumski, 2006, p. 75).

The concept of sustainable development is not univocal, and in the literature one can find it variously defined as (Borys, 2005, p. 67; Borowiecki, Siuta-Tokarska, 2016, pp. 71–81; Bedrunka, 2020, pp. 11–18):
– the features of self-sustaining and sustainable development,
– a synonym for eco-development,
– an approach complementary to sustainable development,
– a synonym for environmental neutrality,
– a concept broader than sustainable, self-sustaining development and eco-development,
– a category complementary to unconventional development, along with sustainable, self-sustaining development and eco-development.

Due to the multitude of interpretations of sustainable development, for the purposes of this paper, the author's approach to this concept has been adopted,

namely "striving for a state of equilibrium on the path of development of the world between the three basic capitals in the following order and the order of their occurrence"[4]:

$$N : S : E \; \rightarrow \; EQ \tag{1}$$

where[5]:

    N – natural capital,
    S – social capital,
    E – economic capital,
    EQ – state of equilibrium,

taking into account the necessity to preserve and not to reduce the value of any capital by another.

The above model is diverging at breakneck speed from the model implemented so far, i.e. the model of the domination of economic capital over the others, which can be presented in the following form:

$$E > S > N \; \rightarrow \; DEQ \tag{2}$$

where:

    E, S, N – designations as in formula 1,
    DEQ – state of disequilibrium.

In turn, the concept of "sustainability of development" should be explained as broadly understood long-term progress – positive changes (which does not exclude the occurrence of changes other than those expected for short periods).

Therefore, taking into account the importance of sustainable development, both as a theoretical scientific concept and a practical "measure" for the survival of the world, this concept is not without reason indicated as a postulative metaparadigm of modern economics and management science (Borowiecki, Siuta-Tokarska, 2018, pp. 7–15; Borowiecki, Siuta-Tokarska, Kusio, 2018, pp. 28–43). This concept is also a new approach to development economics. The current joint analysis of natural, social and economic processes is linked to a different approach in relation to earlier sectoral analyses that limit interdisciplinarity (Rokicka, Woźniak, 2016, p. 10). The new approach provides the basis for a possibly holistic approach to the analysed changes, processes and relationships.

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[4] This order results from the fact that natural capital is a *sine qua non* for the existence of the other capitals, i.e. social and economic. In turn, without social capital, there is no economic capital. In this approach, economic capital is the product of human action and its value in the axiological aspect cannot be put above the value of social capital, whilst social capital cannot exist without natural capital.

[5] It should be emphasised that this is not about mathematical proportions, but about understanding and implementing a world development model in which the value/space of one of the capitals is not appropriated by another, and taking action to maintain the balance between them.

Assuming, thus, that the peculiarity of the human species is the creation of unity in cultural diversity (Piątek, 2005), the idea of sustainable development is undoubtedly one for which an opportunity to pursue the message of the complementarity of the rationalist-mechanistic way of thinking with systemic holistic thinking has been created (Malikowski, 2016, p. 55). This, in turn, provides a basis for its implementation, and thus allows us to perceive it as a "**live idea**".

Economics of moderation and sustainable development – conclusions for the future

In accordance with the philosophical approach, "reason and moderation" are the two cardinal virtues, besides bravery and justice, that underlie the whole human moral life (Żardecka, 2017, p. 7). In the classical approach, a virtue is defined as a constant tendency and power of will (character) in pursuing moral values (Herbut, 1997, pp. 90–91). That is why ancient philosophers, such as Socrates, Plato and Aristotle, believed that desires or fears could not be a way to achieve human happiness, i.e. *eudaimonia*[6], and virtues constituting the good of the individual serve the community to the greatest extent (Żardecka, 2017, p. 9).

The virtue of moderation is, to some extent also nowadays, a principle expressed in the words: "know moderation, moderation is the best", and in accordance with Aristotelian philosophy – as a search for the golden mean: *"Thus a master of any art avoids excess and defect, but seeks the intermediate and chooses this – the intermediate not in the object but relatively to us"* (Aristotle, 1996, p. 111). It is moderation that comes with reason, as it determines the rational use of things. St. Thomas Aquinas points out that moderation emphasises the beauty and harmony of human personality and life balance. In this sense, the virtue of moderation is not only an important aspect of everyone's life, but it is also an essential element on the path to authentic human development as an individual, and the development of society as a living organism (philosophy of organicism), which in order to be healthy must not have its ailing elements.

The contemporary approach to the virtue of moderation – in the context of human management – allows for it to be taken as the idea of "moderate wealth", thus referring to A. Smith's classical work. This new approach to the enrichment of nations arises from overwhelming consumerism (object above subject), the era of videocracy and post-thinking, and a lack of values and real standards. As a consequence of fatigue caused by excess and unrestrained human desires to possess and acquire, and, on the other hand, poverty, deficiencies and limitations on life expectancy, a search for and expectation of a practical lesson in reason and moderation can be observed. In this respect, the foundations for management

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[6] Eudaimonia – real, full happiness, flourishing and prosperity, welfare, wealth.

practice can be found in the theory of the economics of moderation, based on the idea of "moderate wealth", which can have at least three functions in socio-economic life (Zwoliński, 2008, p. 69):

1. an educational and pedagogic function which is associated with release from the attachment to material desires and expectations, as well as from the pursuit of material wealth which quite easily turns into a form of enslavement;
2. a function regulating legal aspects and the functioning of the economy: new relationships in society enable market principles based on justice and responsibility to break through;
3. a balancing function: moderation of enrichment allows for creating environmental, social and economic order with a sense of security, participation and solidarity.

In accordance with the so-called new pragmatism, the economics of moderation is therefore, in the context of the above-mentioned moderate wealth concept, a scientific theory (Bałtowski, 2016; Twarowska, 2016, pp. 35–45):

– with a descriptive, explanatory and evaluative nature of knowledge transfer;
– in which the contextuality of specific dynamic and complex circumstances and conditions, including limitations and opportunities to pursue economic development, can be seen;
– in which the comparative nature of environmental and spatial, cultural, legal and political, economic and other realities is emphasised;
– in which the multidisciplinarity of the undertaken scientific considerations is noted;
– and threads of analysis and synthesis of various economic schools are combined, including microeconomics with macroeconomics, which, in turn, is conducive to a comprehensive approach to the research subject.

As G. W. Kołodko rightly notes, the economics of moderation is based on rational management – both on micro and macro scales – which requires pragmatism derived from a system of values that promotes sustainable development (Kołodko, 2015, p. 7). To balance the three capitals (natural, social and economic), there must also be a balanced distribution of income, which is linked to mutual income relationships in the various social and professional groups. Studies based on comparative, long time series clearly show that, on the one hand, a narrow minority of the world's population "seizes" the vast majority of global income, including the benefits of its growth, and, on the other, it is in countries with a relatively low degree of income inequality that economic growth is more sustainable than in countries with pronounced income differentials (Malinowski, 2014, pp. 18–28). Therefore, a thesis can be put forward (taking into account available research findings) that it is a socially balanced distribution of income among the world's population that should result in ensuring more sustainable global economic growth. However, a question arises: how can the constant pursuit of economic growth (which, incidentally, is criticised as a basis for measuring economic development)

be reconciled with the "dying out" of natural capital (the Living Planet Index (LPI) decreased by 60% from 1970 to 2014, which means that the average number of the total population of vertebrates worldwide decreased by more than half in just 44 years)[7], without which neither social nor economic capital can exist?

For the economics of moderation to be a pragmatic and implementable theory, economic life must be governed by the principle of moderation and adapted to real economic growth capacities, as well as natural capital must be recognised as a *sine qua non* for social and economic capitals. It is, therefore, necessary to balance flows (income and expenses, supply and demand, supply and sales) and economic resources (assets, savings, inventories), and to transition from the economy of permanent imbalance to an economy of balance and moderation (Kołodko, 2016, pp. 16–17). This, in turn, requires not only social/global education, but also a change in the life philosophy of modern people, including the values they profess. Is this possible?

This is a question each of us must answer. However, looking holistically and perceiving the consequences of the aforementioned environmental and social changes as well as continuous (minor or major) economic crises, we have two choices:

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either life for ourselves and future generations
or its "dying out".

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[7] Based on: *Living Planet Report – 2018*.

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Summary

The article describes attempts at implementation of the idea of sustainable development in the world economy of the 21st century. The presented research is theoretical. The aim of the study is to set economics of moderation as a theory in the evolution of economic thought. The problem of sustainable development in the world economy has been depicted in relation to ongoing environmental, social and economic changes, pointing to the negative effects of the implementation of the current consumption model of contemporary economies. "Economics of moderation" is a new, unique approach to the theory of economics forming some kind of theoretical basis to the practical implementation of a real development restoring the right understanding of intergenerational harmony and justice. In the research work, an analysis of the literature on the subject, both domestic and foreign, was used within the scope of research methods of social sciences in the field of analysis and criticism of literature, as well as analysis and logical construction.

Keywords: economy, moderation, sustainable development.

Ekonomia umiaru – w kierunku zrównoważonego rozwoju

Streszczenie

W artykule podjęty został problem realizacji zrównoważonego rozwoju w gospodarce światowej XXI wieku. Przedstawiona praca ma charakter teoretyczny. Celem publikacji jest przedstawienie ekonomii umiaru jako teorii w kontekście ewolucji myśli ekonomicznej w głównym nurcie ekonomii rozwoju. Zagadnienie to zostało ukazane w relacji do postępujących zmian środowiskowych, społecznych i ekonomicznych, ze wskazaniem na negatywne skutki realizacji obowiązującego konsumpcyjnego modelu współczesnych gospodarek. „Ekonomia umiaru" to swoiste nowe spojrzenie na teorię ekonomii, która daje podstawy teoretyczne do przejścia w rzeczywistą, praktyczną realizację rozwoju, przywracającego właściwe pojmowanie ładu i sprawiedliwości międzypokoleniowej. Na potrzeby realizacji niniejszych badań wykorzystano analizę literatury przedmiotu zarówno krajowej, jak i zagranicznej w obrębie metod badawczych nauk społecznych z zakresu analizy i krytyki piśmiennictwa, a także analizy i konstrukcji logicznej.

Słowa kluczowe: ekonomia, umiar, zrównoważony rozwój.

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The digital gender divide.
A focus on inclusion through mobile phone use in India

Introduction

In many countries, the benefits of the ongoing digital transformation are not equally balanced between various social groups. The fashionable term for the fault-line running through populations referring to the possession or lack of information and communication technologies (ICTs) is the "digital divide" (Huws, 2001). It may take many forms (e.g. lack of access to infrastructure or lack of skills), which also vary depending on the technology considered (e.g. mobile and landline telephony or computer use). The subject of this paper is the digital gender divide through the lens of unequal access to mobile telephony and the internet. Given the rise of mobile-only internet use around the world and policy commitments to increase internet penetration through smartphones, especially in developing countries, brings the topic of digital inclusion into sharper focus. It becomes even more important in the context of the pandemic and digitalization of many issues. The aim of this paper is twofold: to present the benefits and limitations of digital inclusion through mobile phones from the perspective of women and to examine the barriers that they face in successfully achieving it in India. This country has been chosen as representative of developing countries since it is widely distinguished by its inequalities in social, economic and geographical aspects (Chancel, Piketty, 2017; Panda, http) while being at the forefront of countries in the world in terms of online work (Lehdonvirta, 2017). The theses set out are: 1) mobile access can represent a pragmatic solution to the digital divide, including the digital gender divide, even if mobile-only internet use does not necessarily lead to complete

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e-inclusion, 2) due to the nature of the barriers to access, the digital gender divide remains a persistent problem in India.

First, the paper presents a theoretical background of the digital divide, then the emphasis is placed on the benefits of digital inclusion from the perspective of women and on the limitations related to inclusion through mobile phones. The focus on India allows the provision of a snapshot of the state of the digital gender divide and the barriers to mobile inclusion. Subsequently, the initiatives leading to elimination of the described phenomena are highlighted.

The research methods used are literature review, comparative analysis of statistical data (provided mainly by GSMA[2], 2020), analysis of documents and online sources, and synthesis. A growing amount of the available literature investigates the problem of the digital divide. There is also a greater interest in the topic of the fight against the digital gap supported by inclusion through mobile phones. This paper confronts these issues by means of reviewing the relevant literature. The focus here is on the digital gender divide, hence the literature review addresses not only issues related to the gap itself but also refers in this context to women and the gender perspective. Using comparative analysis, statistics on mobile phone telephony in India (including access to mobile internet) are presented and analysed. The main barriers to network access have also been identified. Both issues are broken down by gender.

The digital divide – a theoretical background

The Fourth Industrial Revolution draws attention to the speed and quality of information transmitted, and the basis of these changes are: data, the universality of ICTs and the skilful use of them. The possession or lack of permanent access to the above creates a digital divide. This term is a metaphor signifying the flip side of e-inclusion (e-participation) in various dimensions (Table 1) and it marks the gap between individuals, households, socio-economic groups, businesses, sectors and geographic areas at different socio-economic levels with regard both to their opportunities to access ICTs and to their effective use of the internet for a wide variety of activities (OECD, 2001). The concept relates not only to the uneven access to and usage of ICTs but also to the socio-economic implications.

Although the topic of a digital divide is multidimensional (Table 1), there are certain levels that have many elements in common (respectively: individuals and households or countries and regions) and most of the indicators are applicable from the micro-micro to the macro level. For example, skills or ownership of a device can be examined with reference to location (country, region), gender or edu-

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[2] Data sourced from the annual GSMA Intelligence Consumer Survey, which in 2019 had over 16,000 respondents from 15 low- and middle-income countries (LMICs).

cation level. Depending on the perspective, the digital divide can be the subject of researchers interested in several not-mutually-exclusive topics such as inequality of opportunity, gender equality, social inclusion, and others.

Table 1. The digital divide – levels, reasons and indicators

Level	Micro-micro	Micro		Meso		Macro
Per-spective	Individuals	Households	Enterprises, organizations	Sectors	Regions	Countries
Contributing factors	Gender, age, health state, income, location, ethnicity, religion, language	Income per dweller, location, language, ethnicity, religion, education	Financial condition, number and level of education of employees, location, type of sector	Type of industry, location	Location, language, income per capita, size and population	Location, level of development, income per capita, size and population
Indicators	ICT infrastructure, network coverage Connection speed Enough data and access to an unlimited broadband connection Ownership of an appropriate device, from mobile phone (with a breakdown by type) to computer Skills in using devices and ICTs Regularity/frequency of internet use					

Source: own work on the basis of: (OECD, 2001; OECD, 2018; Bonfadelli, 2002; Friederici, Graham, 2018; Büchi, 2017).

The roots of the concept of the digital divide can be found in the knowledge gap research of the 1970s (Tichenor, Olien, Donohue, 1970). The increasing "knowledge gap" was referred to the phenomenon in which people of a higher socio-economic status (intensive users of media services) acquire information faster than lower-positioned groups so that the gap between these two segments tends to increase. The former continuously increase their advantage by making optimal use of the information available through media compared to those who do not. According to Tichenor *et al*. (1970), the level of gained knowledge was determined by education level or socio-economic status. The topic of the knowledge gap was also raised, for example, by Gaziano (1997), Bonfadelli (2002), Selhofer and Hüsing (2002) and others. As technology advances, access to different media has been considered. Regardless, later concepts of the "gap" or "divide" can be considered as updated versions of the analogue knowledge gap from the 1970s.

Even contemporarily there are different levels of access to ICTs depending on the development level of a country. In some places it may be wire infrastructure and basic skills, but as the trend of mobility of electronic services is gaining significance and as mobile phones are becoming more available, they are perceived as crucial players in supporting digital inclusion. The phenomenon is observed in

developed countries but even more so in developing ones, since mobile phones are more affordable than computers and break down access barriers such as costs of infrastructure, equipment and required skills.

The problem raised by some authors is that mobile phone-only use does not necessarily lead to e-inclusion since it is related to lower levels of skill and less diverse uses of the internet compared to those who also use a computer. Internet use through computers allows more information-seeking, work activities or content creation activities, while phones have poorer affordances in terms of many parameters (Pearce, Rice, 2013; World Wide Web Foundation, 2020b). Thus, mobile-only internet users emerge as kind of second-class citizens online (Correa, Pavez, Contreras, 2018). The argument about incomplete inclusion does not undermine the logic adopted here since web access through mobile phones represents a more readily-available opportunity for those who lag behind. Put simply, it is better to be a mobile-only internet user than not to use the internet at all[3]. What should not be neglected is that if the digital divide exists in the field of mobile telephony, the digital gap (in general) could be even larger, considering socio-economic impact of the concept. Computer users can increase their advantage (compared to mobile-only internet users) by exploiting their devices in more sophisticated ways, developing their skills and levels of knowledge.

E-INCLUSION THROUGH MOBILE ACCESS IN DEVELOPING COUNTRIES
– GENDER PERSPECTIVE

Although the benefits of using ICTs apply to men and women, their importance should be particularly emphasized in the case of women, who are often at higher risk of exclusion in various dimensions than men, especially in patriarchal societies (Oxfam International, 2010; Sabharwal, Henderson, Smart Joseph, 2020; Tusińska, 2020). Internet access can inspire women to begin to challenge the environments in which they live thanks to (Castells, 2000; McCarrick, Kleine, 2019):
– improved access to online learning, government and financial services,
– possibilities of political and civic engagement,
– communication across physical and social boundaries,
– business opportunities,
– improved access to health information (i.e. telemedicine platforms),
– satisfying recreational needs and strengthening social ties.

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[3] While there are mobile-only users, the probability that someone is a computer-only user is negligible. It is much more likely that a computer user is able to operate a smartphone and owns one.

These advantages are interconnected. For example, the internet lowers the hurdle on access to both general and specific knowledge, including education or online courses, which may prove particularly helpful for women with little education. Web users can also find information about vacancies or instructions on how to set up their own business. Access to ICTs also enables participation in professional social networks (i.e. LinkedIn) and creates options to enter labour markets through online platforms (i.e. Uber). In this way women can not only gain financial independence, but also help contribute to the welfare and well-being of their families and communities.

Insofar as the advantages of internet access are self-evident regardless of the device providing it, a deeper analysis shows some nuances. One of these is how online platforms are often advantageous for women in particular – mainly because of the possibility to better combine motherhood while pursuing a career. If women are discriminated against on the local labour market or one of its segments (including the formal one[4]), platforms allow them to access more distant markets or the local market through a veil of anonymity[5] provided by the digital medium (Graham, Hjorth, Lehdonvirta, 2019). Reaching out to distant markets would be particularly valuable for women with constrained mobility, e.g. those in rural areas (also allowing them to avoid the risk of assault). Platforms involve both the "digital gig economy" (online work as a translator or software tester, for example) and the "physical gig economy" (as a taxi driver, tailor or cleaner, for example) (Minter, 2017; Heeks, 2017). Mobile-only platform users seem to work mainly in location-based service delivery, whereas job opportunities in online labour are reserved for computer users. In other words, a mobile phone is enough to reach a client, but a task will probably be performed physically on site or nearby. Therefore, the possibilities to "escape" from the local market seem to be very limited.

Despite such limitations, mobile devices are still a boon for those who have never used computers. They also provide other specific benefits. Smartphones in particular offer women more privacy and confidentiality in accessing the internet. Moreover, for a woman trying to be an entrepreneur in a patriarchal society, this may be an important source of independence, especially with the advent of "mobile money" which enables financial transactions from SIM card to SIM card. For many women with no formal bank account, "mobile money accounts" can be a way to bring them into the economy through digital financial services (OECD, 2018).

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[4] A common phenomenon in developing countries, including India (OECD, 2011).

[5] Gender-neutrality can be deceptive. Machine-learning algorithms are curated by coders who might program some inherent bias into them (Kasliwal, 2020).

The digital divide in India – the results from the analyses

In a country where over 80% of the population worships goddesses of different kinds, the standing of women has deteriorated since the medieval period and the formation of the caste system (Keelery, 2020), so that today many issues related to the physical, economic and social conditions still hinder the development and empowerment of women in India (MOSPI, 2016). Organisations which rank gender disparities consider India to be relatively unequal. For example, according to Global Gender Gap Index (World Economic Forum, 2020a), the country was ranked 112 out of 153 countries[6]. The index focuses on the relative gap between men and women in 4 categories – economic participation and opportunities, educational attainment, health and survival, and political empowerment. India scores poorly especially on the first one (ranked 149). Although women constitute a little less than half of the economically active population, their contribution to economic activity is far below their potential. According to the World Bank's Gender Statistics database, the labour force participation rate is 20.5% of the female population aged 15+ and 76% of the male analogous population (World Bank, 2020). Females dominate in employment in agriculture while males dominate significantly in industry and services. The activities of women in the informal sectors are difficult to measure. The potential benefits described in the previous section suggest that the position of women (on labour market and in society) as internet users could improve at least slightly. The data below (Table 2) show to what extent mobile internet access is limited for men and women in India. Additionally, the data presented juxtapose statistics concerning various types of mobile phones for both genders.

Table 2. Mobile phone ownership, mobile internet use (percentage of total adult population in India) and share of population by type of handset owned* – gender perspective

	men	women
Mobile phone owners	79	63
Mobile internet users	42	21
Smartphone	37	14
Feature phone	9	6
Basic phone	29	31

* Respondents are categorised according to the most advanced device they own. Device owners are included only if they have an active SIM or a phone that functions without a SIM. The total percentage of device owners do not match the percentage of phone owners since the latter captures people who have the sole or main use of a SIM card whereas the former is device specific.

Source: own compilation on the basis of GSMA, 2020.

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[6] Although there are different dimensions considered, similar conclusions concerning women's status appear on the basis of the Social Institutions Gender Index (OECD, 2019) and Gender Inequality Index (UNDP, 2013).

Except for the basic mobile phone, more men than women use devices (Table 2). It must be noted that the type of mobile phone has a major impact on how people use the internet (it is not possible to access the internet on a basic mobile phone), thus the most significant is the proportion of smartphone owners and mobile internet users. Whereas ownership may include a more basic device, and although it is possible to access the internet on a feature phone, web use is richer on a smartphone. The gender gap is visible as only 14% of women own a smartphone (37% of men own a smartphone) and only 21% of women use mobile internet (respectively, twice as many men use mobile internet).

This gap has consequences in distinct use cases on the mobile phone (including basic services, such as sending messages or making voice calls, and more complex, internet-based use cases, such as watching video content). In India men, on average, engaged in 7 use cases on a weekly basis, compared to 4 for women. Attention should be paid to the gender gap but collaterally to the low percentage of both genders using mobile internet (respectively 42% and 21%) and smartphones (37% and 14%) (GSMA, 2020). In striving for digital inclusion, it is crucial to identify barriers that limit the use of mobile phones and – potentially – also the internet (Table 3).

Table 3. Important barriers to owning a mobile phone in India (percentage of non-mobile phone owners who identified the following as a main barrier to mobile phone ownership)

Type of barrier	Men	Women
Affordability		
Handset/SIM cost	31	42
Credit cost	17	12
Literacy and skills		
Do not know how to use a mobile phone	11	16
Reading/writing difficulties	18	24
Relevance		
A mobile phone is not relevant for me	14	17
Safety and security		
Personal safety	11	5
Strangers contacting me	12	7
Information security	11	6
Accessibility		
Battery charging	7	7
Network coverage	16	8
Family does not approve	3	9
Access to agent support	9	5
ID	1	4

Source: own work on the basis of (GSMA, 2020).

The most serious barriers concern affordability, literacy and skills as well as relevance (Table 3), the last of which being to some extent a result of low awareness of the usefulness of mobile phones (50% of adult women are aware of mobile internet, vs 71% of men in 2019; GSMA, 2020). Except for credit cost, a greater percentage of women than men described these barriers as the most important. There are a number of reasons given first by men (safety and security in general, network coverage or access to agent support); however, they are not as significant as the three mentioned above. Financial constraints, as the most serious barrier, may be largely a result of income inequality and poverty – both for men and women. Based on the device price relative to the average income, in India an individual has to work 63 days to afford a smartphone (World Wide Web Foundation, 2020a), while for women the period is even longer. It is also critical to understand how women acquire mobile phones. A total of 63% of female smartphone owners purchased their own device compared to 90% of men (GSMA, 2020). This disparity is a sign of women's lack of financial autonomy. A kind of vicious circle can be observed – a mobile phone with internet access would be useful to become financially independent, but low (or lack of) income determines the lack of web access.

In the area of literacy and skills it is not only digital deficiencies that play a role but illiteracy in general (Table 3) as a result of poor education. The issue is related to illiteracy but, to some extent, irrelevance is also specific to India in terms of multilingualism. Second only to the US, India has over 125 million English speakers, but, according to KPMG in India and Google (2017), more of its 1.3 billion people could only become "netizens" if online use of its 22 other official languages was encouraged. Nearly 70% of Indians consider local language digital content more reliable than English content.

Socio-cultural restrictions are not as much of a problem as it might seem – only 9% of women not owning a mobile phone report a "lack of family approval" as the main reason (Table 3). However, such barriers may reveal themselves as not merely a lack of approval but an affordability obstacle. If a woman is not allowed to work then not only is she dependent on a man, but also the income of the family is potentially lower. Paradoxically, in light of orthodox Hinduism, this may be intentional as the duties of a Hindu include acting in accordance with one's caste and assigned role. If they humbly endure their low social position, they can expect to be reborn into a higher social status (Karczewski, 2016). This applies to individuals and whole families as well.

The main finding is that the phenomenon of the digital divide exists in India. A significant percentage of men and women still do not own a smartphone and do not use the Internet. However, the number of digitally excluded women exceeds the number of men, which is evidence of the digital gender divide as well. The data presented in this section also seem to confirm the topicality of Tichenor's view about socio-economic-status and level of education as determinants of the level of knowledge attained.

Initiatives for digital inclusion of Indian women

There are some initiatives which attempt to overcome the problems related to the digital divide, such as expansion of broadband internet into rural areas or the Pradhan Mantri Jan Dhan Yojana financial inclusion program (PMJDY, 2020). It is also worth mentioning the standard on Indian Language Support for Mobile Phones, which requires manufacturers to ensure that mobile phones have the capability to input text in English, Hindi and at least one other Indian official language, and must have the capability to read messages in all 22 official languages (Bureau of Indian Standards, 2016). Although they are not specifically directed at women, PMJDY and the new language standard seem to be important in particular for female e-inclusion. Business initiatives should be also mentioned here. While the primary goal of private sector actors is their own profit, they can also somewhat benefit digitally excluded women. As an example, within the Internet Saathi ("Internet Friend") project, representatives of Google and the Tata Trust trained young female digital instructors to give women in rural villages basic digital skills on Google-provided smartphones, including various applications (Trans World Features, 2017). Such actions can decrease illiteracy and improve technical literacy. The nature of the barriers described in the previous section shows that digital education in itself does not necessarily lead to a smartphone or even a feature phone purchase. What helps to address the financial constraint that disproportionately affects women's access to the internet is substantial cost reduction. This criterion (next to a concentration on core functionalities and optimised performance level) circumscribes "frugal innovations" (Weyrauch, Herstatt, 2017). Some such solutions are developed by international corporations from scratch for local consumers from emerging markets (Tiwari, Herstatt, 2012), and India is known as a "country of *Jugaad*" (affordability-driven innovations) for a reason (Prabhu, Jain, 2015). Some Indian companies, such as Micromax or Jio Platforms, offer cheap "smart feature phones" (available for under $10). The devices maintain the basic form factor of a feature phone but allow for the installation of popular apps and some even connect to LTE networks.

The actions or innovations presented above have intensified in recent years, therefore it is difficult to unequivocally assess whether or not they are insufficient until enough time has passed. However, the scale of the digital gender gap and digital exclusion in general (Table 2) creates an expectancy that the solutions undertaken were not enough to overcome the barriers of e-inclusion in India. Thus, similar action must be continued both by government and companies.

The digital gender gap is influenced by such factors as general education access, income inequality, and cultural biases discouraging women and girls from using technology. From the point of view of economic policy, it coincides with measures leading to economic development and levelling out inequalities in various cross-sections.

Even as smartphone prices decline, low-cost devices are still not affordable for many people in India, especially women whose lower income levels and lack of financial autonomy limit their ability to purchase a smartphone independently. To ease the financial barriers, the government should support projects that help people, especially women, lower the cost of devices, and give them access to credit or other financial tools so they do not need to pay the full cost of a device upfront (World Wide Web Foundation, 2020a).

The imperatives are digital education and skills training. The government must invest in ICT education to encourage women to use the internet, perhaps partnering with schools to offer safe spaces for women of all ages to participate in some educational programs. Moreover, in a very real sense, females are at risk of online abuse, harassment and threats of violence. Governments and companies have a role to play in keeping them safe by protecting their right to privacy. The authors of the Women's Rights Online Report emphasize the necessity of collecting and publishing gender disaggregated data in the ICT sector, since they are needed to address specific needs and tackle the digital divide (World Wide Web Foundation, 2020b). A problem with the availability of data on the issues discussed was also revealed when collecting materials for the article (i.e. in the World Bank and International Telecommunications Union). Gaps in gender data and a lack of trend data make it difficult to monitor progress for women and girls (Azcona, Valero, 2018). Unless gender is mainstreamed into Indian strategies and prioritized in data collection, gender data scarcity will persist.

CONCLUSIONS

The study shows that the problem of the digital gender gap cannot be resolved by mere provision of access to technical infrastructure, because a more complete digital inclusion process entails addressing digital skills and differentiated uses of the internet. Mobile access, as a speedy and relatively inexpensive alternative, should play a greater role in providing internet access and supporting the digital inclusion of women in India. Today, nearly 80% of the women still do not use the Internet and 80% do not have a telephone that would enable it (a smartphone or at least a feature phone, Table 2). The main barriers are: illiteracy, costs and irrelevance. Since these reasons make it impossible to purchase a smartphone, it is even more difficult to imagine the acquisition and use of a computer. If women in India are not connected at least through mobile devices, the digital gender divide will continue to widen. Not only are the statistics concerning access important but also what can be gained from advancing the use of digital tools. In short, access to the internet creates new avenues for the empowerment of women, offering "leapfrog" opportunities. Not only does it enable access to general information, but such solutions as digital platforms or digital financial services can help bridge the divide by giving women the possibility

of earning additional income and increasing their employment opportunities. The conclusions drawn confirm the hypotheses. However, there is a need for greater research in the field of the digital gender divide and in shaping the policy responses needed to close it. So far, actions by governments and companies have been too slow and too limited. Digital equality is important not only for individual rights, but inclusive digital development is critical in confronting the coronavirus outbreak. The limits of the study are that it covers the country as a whole. Further studies could focus also on regional inequalities.

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Summary

Due to the growing use of ICTs in all areas of life, the means to access these technologies and skills to operate them are regarded as important prerequisites for social inclusion or, more specifically, e-inclusion. In developing states, mobile connectivity has become an important way for people to access the internet since smartphones are more affordable than computers and break down such access barriers as costs of infrastructure, equipment and required skills. The aim of the article is to present the benefits and limitations of digital inclusion through mobile access from a gender perspective and to investigate the barriers to this process. The research is undertaken from

an Indian perspective. The theses verified are: 1) mobile access can represent a pragmatic solution to the digital divide, including the digital gender divide, even if mobile-only internet use does not necessarily lead to complete e-inclusion, 2) due to the nature of barriers to access, the digital gender divide remains a persistent problem in India. The research methods used were literature review, analysis of statistical data, online sources and elements of a case study. Access to mobile devices and the internet are not gender-neutral in India. There are a number of root causes of the digital gender divide, including financial constraints, technological illiteracy, as well as socio-cultural norms. Therefore, government and business activities should focus on these areas.

Keywords: digital gender divide, e-inclusion, gender equality, mobile phones, internet.

Luka cyfrowa między kobietami a mężczyznami. Bariery włączenia cyfrowego kobiet w Indiach

Streszczenie

Ze względu na rosnące wykorzystanie ICTs we wszystkich dziedzinach życia, posiadanie urządzeń umożliwiających dostęp do tych technologii i umiejętności ich obsługi są uważane za warunki wstępne włączenia społecznego, a dokładniej e-inkluzji. W krajach rozwijających się ważnym sposobem uzyskiwania dostępu do Internetu stała się telefonia komórkowa, ponieważ smartfony są tańsze niż komputery i wydają się znosić bariery dostępu, takie jak koszty infrastruktury, sprzętu i wymaganych umiejętności. W tym kontekście celem artykułu jest przedstawienie korzyści i ograniczeń integracji cyfrowej poprzez dostęp mobilny z perspektywy płci oraz zbadanie barier tego procesu z perspektywy Indii. Podjęto się weryfikacji dwóch hipotez: 1) dostęp mobilny może stanowić pragmatyczne rozwiązanie problemu luki cyfrowej (w tym ze względu na płeć), nawet jeśli korzystanie wyłącznie z urządzeń mobilnych niekoniecznie prowadzi do pełnej e-integracji, 2) ze względu na specyfikę barier w dostępie, cyfrowa luka między płciami pozostaje aktualnym problemem w Indiach. Zastosowane metody badawcze to krytyka literatury, analiza danych statystycznych, analiza źródeł internetowych oraz elementy studium przypadku. Stwierdzono, że w Indiach dostęp zarówno do urządzeń mobilnych, jak i do Internetu, nie jest neutralny pod względem płci. Wśród ważnych przyczyn tej sytuacji można wskazać ograniczenia finansowe, brak umiejętności, a także normy społeczno-kulturowe. Działania rządu i biznesu powinny zatem koncentrować się na tych obszarach.

Słowa kluczowe: luka cyfrowa, e-inkluzja, równość płci, telefony komórkowe, Internet.

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Tax-based forms of state aid in Poland as compared to other EU states

Introduction

State aid is a special form of state intervention falling within the category of allocation and redistribution activities. The instruments of state aid, like the whole tax system, are key tools used to eliminate income and social inequalities. The beneficiaries of the aid obtain material benefits in the form of resources originating from taxes or in the form of regulatory liabilities. The resources constituting the basis of granting the aid are in turn reassigned from other areas of socio-economic life. In light of the above, a hypothetical opportunity cost should be taken into account as part of the decision-making process in terms of choices (Piechowicz, 2016).

Tax-based forms of offering state aid constitute a necessary part of the state fiscal policy. Apart from the standard allowances and exemptions, constituting parts of the tax structure, there are special forms of allowances and exemptions falling into the category of state aid, the latter being of an entirely different nature. The tax preferences forming part of state aid do not, however, comprise part of the structure of any kind of tax, but instead are institutions of general tax law and may concern all taxes (Sosnowski, 2014).

In light of the above, exhibiting the available forms of tax-based state aid has become the main objective of the study and the basis for taking up the research area in question. In this paper the structure of state aid in Poland, as compared with other EU member states, will be presented, with an emphasis on tax instruments. Tax preferences are a significant form of state aid in Poland, and their importance in the structure of state aid provided differs in the respective EU states (Spychała, 2019).

The added value of the paper is in the provision of current knowledge concerning the sources of tax-based forms of state aid.

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This paper discusses the theoretical aspects of state aid, followed by a presentation of the tax-based forms of state aid available in Poland. The following research methods have been used: descriptive analysis, quantitative analysis and comparative analysis. The statistical data has been drawn from the Consumer Protection Offices on state aid granted to Poland, the latter data being transferred to the European Commission and forming the basis for the EU papers under *State Aid Scoreboard* available in the Eurostat database.

<h2 style="text-align:center">INDICATIONS FOR AND FORMS OF GRANTING STATE AID</h2>

State aid is regulated in articles 107–109 of the Treaty on the Functioning of the EU (TFEU). Although the treaty lacks a precise definition of state aid, this is not an oversight on the part of the European legislator, but rather a conscious choice whose purpose is to state within as broad a scope as possible the level of control exerted by the EU institutions over the aid granted to enterprises by the member states (Nicolaides, Kekelekis, Kleis, 2008).

In accordance with article 107 par. 1 of the TFEU, what should not be aligned with the rules of the common European market is aid that would infringe on the exchange between member states that at the same time would result in assigning some enterprises or some industries a privileged status, thereby disrupting competition, or the risk of doing so. Art. 107 par. 1 TFEU indicates the conditions that have to be simultaneously met in order for this aid to be considered state aid (Biondi, Eeckhout, Flynn, 2005). If the aid is characterised by all the features stated below ('indications'), then it should be considered state aid not in accordance with the rules of the common European market, and thus banned (Jankowska, Marek, 2009). These features are:

– granted by the state or originating from state resources,
– granted on conditions more favourable than those available on the market,
– of a selective nature, i.e. offering preferential treatment to a selected enterprise or the manufacture of specific goods,
– disruptive of competition or threatening the same,
– impacting the trade exchanges between the EU member states.

In art. 107 part 1 of the TFEU, a general ban on granting state aid in the EU member states is introduced (Donzelli, 2019). However, two groups of exceptions exist. The first one involves categories of aid which have been considered to be in accordance with the internal market under the law. These are (TFEU art. 107, par. 2): social aid granted to individual consumers and aid related to repairing damage caused by natural disasters or other extraordinary events, including aid granted to some regions of the Federal Republic of Germany concerned by the division of Germany. The second group of exceptions are categories of aid that may be considered to be in line with the rules of the common market based on the decision of the European Commission. They include (TFEU, art. 107, par. 3):

regional aid, horizontal aid, sectorial aid, aid supporting culture and maintaining cultural heritage, aid devoted to realising projects of a European wide scope or preventing serious destabilisation of the economy of any member state as well as other categories of aid on the application of the European Commission.

In line with the guidelines of the European Commission, one may distinguish four groups of forms of state aid (Ecorys, 2019). Within each, there is an additional active subgroup constituting the direct movement of public funds to enterprises (1), and a passive subgroup for negative aid consisting of lowering the inflows to the budget or local government units (2). In economic practice, a fifth group of aid (E) comprises other forms of state aid not included within any other category (European Commission, 2001). The classification of forms of state aid is presented in Table 1.

Table 1. Classification of forms of state aid

Group	Subgroup	Forms of state aid
A	A1	grants
		reimbursements
		compensation
		loan interest subsidy (granted directly to the entrepreneurs)
	A2	tax or levy exemption
		tax deduction
		foregoing the collection of tax or fee
		foregoing the collection of interest on tax arrears
		a one-off amortization
		foregoing the collection of the execution cost or the cost of the proceedings
B	B1	equity participations in the form of introducing capital to the company
	B2	equity participations in the form of the receivables converted into stocks or shares
C	C1	preferential loans
		loans provisionally redeemed
		interest-rate subsidies (granted to banks)
	C2	the postponement of the date of payment of tax or fee
		an arrangement for the payment of tax or fee in instalments
		an arrangement for the payment of interest or collection costs in instalments
		the deferment of the date of payment of the interest or collection costs
D	D1	guarantees and credit guarantees
E		other forms of state aid

Source: (Spychała, 2014).

The subject of this paper is the tax-based forms of state aid. These occur under subgroup A2 (tax exemptions) as well as subgroup C2 (tax deferment), and thus form an example of passive state aid, signifying a complete or partial exemption of the beneficiary from the commitments incurred (Spychała, 2013).

Table 2. Forms of state aid in Poland in the years 2010–2019

A form of state aid	The worth of state aid granted in PLN mln (excluding aid in transport)										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2010–2019
Groups-in general, including:	**21235.5**	**17466.9**	**18054.9**	**18154.6**	**20138.1**	**16169.9**	**19936.7**	**31003.1**	**21746.5**	**24384.3**	**208290.5**
Group A, including:	**19397.3**	**16998.3**	**17188.5**	**17810.8**	**18954.1**	**14868.4**	**19729.3**	**30522.9**	**21 225.0**	**23898.6**	**200593.2**
– A1 group	16447.9	14900.1	15347.1	15667.7	16 358,0	12017.8	16994.4	27835.7	18413.7	20966.2	174948.6
– A2 group	2949.4	2098.2	1841.4	2143.1	2596.1	2850.6	2734.9	2687.2	2811.3	2932.4	25644.6
Group B, including:	**190.2**	**278.1**	**128.4**	**51.1**	**724.6**	**772.8**	**38.3**	**396.7**	**210.3**	**63.8**	**2854.3**
– B1 group	190.2	278.1	128.4	51.1	251.1	772.8	38.3	396.7	210.3	63.8	2380.8
– B2 group	0.0	0.0	0.0	0.0	473.5	0.0	0.0	0.0	0.0	0.0	473.5
Group C, including:	**338.6**	**183.7**	**736.1**	**289.9**	**408.7**	**86.8**	**34,0**	**81.6**	**235.4**	**120.7**	**2515.5**
– C1 group	338.4	179.9	736,0	289.9	399.9	86.8	34,0	81.6	235.3	120.6	2502.4
– C2 group	0.2	3.8	0.1	0.0	8.8	0.0	0.0	0.0	0.1	0.1	13.1
Group D	**4.7**	**6.8**	**1.9**	**2.8**	**50.7**	**441.9**	**135.1**	**1.9**	**75.8**	**301,0**	**1022.6**
Group E	**1304.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**1304.9**
A form of state aid	The structure of state aid granted in % (excluding aid in transport)										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2010–2019
Groups-in general, including:	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Group A, including:	**91.3%**	**97.3%**	**95.2%**	**98.1%**	**94.1%**	**92,0%**	**99,0%**	**98.5%**	**97.6%**	**98,0%**	**96.3%**
– A1 group	77.5%	85.3%	85,0%	86.3%	81.2%	74.3%	85.2%	89.8%	84.7%	86,0%	84,0%
– A2 group	13.9%	12,0%	10.2%	11.8%	12.9%	17.6%	13.7%	8.7%	12.9%	12,0%	12.3%
Group B, including:	**0.9%**	**1.6%**	**0.7%**	**0.3%**	**3.6%**	**4.8%**	**0.2%**	**1.3%**	**1,0%**	**0.3%**	**1.4%**
– B1 group	0.9%	1.6%	0.7%	0.3%	1.2%	4.8%	0.2%	1.3%	1,0%	0.3%	1.1%
– B2 group	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
Group C, including:	**1.6%**	**1.1%**	**4.1%**	**1.6%**	**2,0%**	**0.5%**	**0.2%**	**0.3%**	**1.1%**	**0.5%**	**1.2%**
– C1 group	1.6%	1,0%	4.1%	1.6%	2,0%	0.5%	0.2%	0.3%	1.1%	0.5%	1.2%
– C2 group	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Group D	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.3%**	**2.7%**	**0.7%**	**0.0%**	**0.3%**	**1.2%**	**0.5%**
Group E	**6.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.6%**

Source: based on own study (Consumer Protection Office UOKiK, 2011–2020).

The total value of the state aid granted to Poland in the years 2010–2019 demonstrated a growth tendency. A decrease in relation to the previous year occurred only in 2011, 2015 and 2018 (Table 2), which was related mainly to the decrease in the worth of the regional investment aid granted to Poland in the form of grants within projects co-financed from EU funds. Aid in the form of grants (group A1) is the most important source of state aid granted to Poland. This kind of aid in the years of 2010–2019 constituted 84.0% of the total aid value, mostly connected with the granting of EU subsidies within the regional aid provided for the lesser developed areas of the EU.

In the years 2010–2019, the value of tax credits (group A2) as well as tax deferments (group C2) constituted, for the period, a total of 12.3% and 0.06% respectively of the total state aid granted within that period. Within aid in the form of tax preferences one may observe some changes. In the case of tax credits, its share in the structure of aid granted decreased from 13.9% to 12.0%, a decrease by 1.9 percentage points. Moreover, the high share of this group in the total state aid in 2015 (17.6%) resulted from a significant decrease in aid granted in the form of subsidies in that year. In the case of tax deferment, subject to a decrease in both the value of aid granted as well the share of this form of aid in the structure of aid in general, this type of aid was of marginal importance in the structure of state aid granted in Poland.

Nonetheless, tax-based state aid was the second most important form of state aid granted in Poland in the years of 2010–2019. Other forms of state aid were of marginal significance. For the whole research period, the state aid granted in the form of equity participation (group B) constituted 1.4% of the total state aid, aid in the form of "soft loans" (preferential loans) constituted 1.2%, and aid in the form of bailments and warranties constituted 0.5%. Moreover, in the first and last year of the period, state aid in other forms was granted as well (group E), connected with aid granted to the manufacturers of electrical energy in the form of compensation on account of the wilful termination of long-term sales contracts for power and energy.

Tax-based instruments of state aid in Poland

State aid in the form of tax instruments may be granted in Poland within the scope of one of the following four possibilities: the activity of an economic entity being conducted in a special economic zone, based on the New Investment Support Act, based on the Act on Taxes and Local Fees, or based on the Tax Ordinance Act.

A special economic zone (SEZ) is an administratively separated, uninhabited part of Poland in which an economic activity based on the rules specified in law may be carried out (Act of 20 October 1994, art. 2). SEZs were instituted in the 1990s as a form of incentive for foreign enterprises, allowing them to locate their investments in weaker developed areas of Poland, in economic terms (Litwińczuk, 2013). The above incentives, primarily in the form of revenue tax exemptions, are forms of state aid.

State aid granted in SEZs can be considered regional investment aid in accordance with the internal market based on the treaty on the functioning of the EU (TFEU, par. 107 subpar. 3, letter a). In relation to state aid, there are intensity limitations specified on the map of regional aid (Cabinet Regulation, 30 June 2014). The greatest benefit obtained as a result of placing an investment in a zone is the exemption of revenue obtained from personal income tax or corporate income tax in an amount equivalent to a multiple of the discounted amount of the investment expenses incurred in the zone as well as the rate of aid allocated to a given region. The basis for obtaining a tax exemption is the zone permission, which specifies the conditions forming the basis for specifying the extent of aid (e.g. the minimum value of an investment and the date of its ending, or the number of employees employed in SEZs) (Act of 20 October 1994, art. 16).

It is worth noting that the tax-based state aid granted to enterprises conducting business activities in SEZs have an expiring character, as the zones will function only until 31 December 2016 (Cabinet Regulation, 23 July 2013). However, from 10 May 2018, the New Investment Support Act should allow enterprises to obtain state aid in the form of tax instruments, analogous to the SEZs, yet with no territorial limitations and for a longer period of up to 15 years (Act of 10 May 2018, par. 5 and 13). One may thus conclude that, based on the above act, the area of the whole of Poland has been acknowledged to form a special economic zone, which is likely to encourage foreign investors to establish their businesses in Poland. State aid related to the activity of enterprises in SEZs will be replaced with aid granted to entities based on the New Investment Support Act.

Another source of tax-based state aid in Poland is the Act on Taxes and Local Fees, within which many solutions which allow the granting of state aid were included. The regulations mentioned above may be divided into two groups (Litwińczuk, 2013): regulations allowing the passing of varied tax rates and local fees (Act of 12 January 1991, art. 5, 10 and 19) and regulations allowing the introduction by way of resolutions of additional targeted exemptions (Act of 12 January 1991, art. 7, 12 and 19).

The Municipal Council may in principle specify the rate of taxes and local fees at will in relation to the respective subjects of taxation, with one reservation – without exceeding the maximum rates indexed on a yearly basis by the Minister of Public Finance and issued by way of an announcement. Moreover, the Municipal Council has the right to vary the rates (e.g. on property tax – based on location, the kind of development, the manner of putting to use or the technical condition as well as the age of the buildings (Act of 12 January 1991, art. 5). However, the introduction of such a differentiation must still abide by the regulations concerning state aid.

It is well worth noting that the Municipal Council's resolution in which rates without any kind of differentiation were introduced should not be considered to be any kind of basis for granting state aid, even when those rates are lower than the maximum rates (Litwińczuk, 2013). The premise of selectivity is thus met. The specified rates charge all taxpayers equally within the area of a specified *gmina*

(district). On the other hand, the introduction of varied rates in a *gmina* may constitute an act of granting state aid. Such aid is granted in the form of de minimis aid.

Additionally in the Act on Taxes and Local Fees, it has been stipulated that the Municipal Council, by way of a resolution, has the opportunity to introduce subject exemptions differing from those specified in the tax regulations (Act of 12 January 1991, art. 7, 12 and 19). An additional exemption may not be a general exemption which would concern all taxpayers (Litwińczuk, 2013). Based on the occurrence of the premise of selectivity, each subject exemption that differs from that stipulated in the Act on Taxes and Local Fees shall constitute state aid.

State aid in the form of tax instruments may also be granted based on the Tax Ordinance Act. One such option is complete or partial discontinuation of tax collection based on a Minister's regulation relevant for public finances, for those cases justified by public interest or an important interest of the taxpayer (Act of 29 August 1997, art. 22). The second group of instruments constituting state aid granted based on the Tax Ordinance Act are exemptions in the repayment of commitments consisting of (Act of 29 August 1997, art. 67a): deferment or arrangement for the payment in instalments of tax or tax arrears together with the interest, or redeeming the tax debt together with the interest for the delay and an extension fee. It is well worth noting that all the instruments enumerated are discretionary, and that the tax authority, in issuing a relevant decision, should be driven by public interest or an important taxpayer's interest. The above notions are, however, unclear, have not been defined in any regulations, and it is the duty of the tax authority to state their relevancy (Litwińczuk, 2013).

Table 3. State aid in the form of tax instruments in Poland in the years 2010–2019

Item	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2010-2019
The worth of state aid granted (in PLN mln)											
Tax aid granted within:	**2949.6**	**2102.0**	**1841.5**	**2143.1**	**2604.9**	**2850.6**	**2734.9**	**2687.2**	**2811.4**	**2932.5**	**25657.7**
– special economic zones	840.7	1003.0	1278.9	1655.7	2074.6	2116.4	2053.2	2013.5	2438.1	2468.9	17942.9
– taxes and local fees	43,0	50.3	50.7	39.3	34.8	41.7	47.5	49.6	61.7	80.0	498.7
– Tax Ordinance Act	2065.9	1048.7	511.9	448.0	495.5	692.5	634.2	624.1	311.6	383.7	7216.1
The structure of state aid granted (in %)											
– special economic zones	28.5%	47.7%	69.4%	77.3%	79.6%	74.2%	75.1%	74.9%	86.7%	84.2%	69.9%
– taxes and local fees	1.5%	2.4%	2.8%	1.8%	1.3%	1.5%	1.7%	1.8%	2.2%	2.7%	1.9%
– Tax Ordinance Act	70.0%	49.9%	27.8%	20.9%	19.0%	24.3%	23.2%	23.2%	11.1%	13.1%	28.1%

Source: based on own study (Consumer Protection Office UOKiK, 2011–2020).

For the 2010–2019 period, PLN 25.7 billion in state aid was granted in the form of tax instruments (Table 3). The vast majority of the aid, 69.9%, was in the form of income tax exemptions granted to entrepreneurs locating their investments in SEZs. The Tax Ordinance Act was the source of 28.1% of the tax aid granted by value in the research period. Only 1.9% of the tax state aid was granted based on the Act on Taxes and Local Fees. The aid granted in the research period based on the New Investment Support Act was of marginal significance due to its novel character; however, a systematic growth in its share in the structure of state aid granted should be expected.

It is worth noting that the structure of aid granted in the form of tax instruments changed dramatically over the research period. In the whole research period, the significance of state aid having its source in the Act on Taxes and Local Fees was low, while in 2010 the aid granted based on the Tax Ordinance Act dominated, constituting as much as 70% of the total aid granted in that year. In 2011 the share of aid granted in SEZs and aid granted based on the Tax Ordinance Act were on a similar level. Since 2012, among all the forms of tax-based aid, state aid granted in SEZs has been dominant, reaching 86.7% of the total tax-based aid granted in 2018. The growth in the value and share of the tax-based aid granted in SEZs in the total of tax-based aid resulted mainly from the increase in the investment activity of enterprises in SEZs, which transferred into a higher level of income obtained from zonal activity. The increase in income (the tax base), in turn, contributed to the increase in the value of the theoretical income tax, which would have had to be paid had it not been for the possibility of taking advantage of state aid in the form of a tax exemption.

Tax-based state aid in the EU states

In the years 2010–2019, within the EU states, state aid of EUR 798.6 bn was granted, which constituted 0.84% of the EU's GDP (Table 4). Both the amount of aid granted and its GDP ratio were characterised by their large differentiation across different states. The highest amount of state aid in the research period was granted to beneficiaries in Germany (EUR 259.7 bn, which constituted 32.5% of the value of aid granted in the EU), France (17.3%), Great Britain (8.2%) and Poland (6.2%). The least state aid in its nominal dimension was granted in Malta (EUR 0.9 bn, which constituted 0.1% of the whole aid granted in the EU).

Taking into account the significance of state aid in the respective states as measured by their ratio to GDP, the highest percentage shares were registered in Hungary (1.8%) and in the Czech Republic (1.6%). A share above the EU average was observed in: Denmark (1.6%), Croatia and Germany (1.5% each), Lithuania (1.3%), Malta and Finland (1.2% each), Poland, Estonia, Latvia and Bulgaria (1.0% each), as well as Sweden and Slovenia (0.9%). The least significant state aid was registered in Ireland, which amounted to as little as 0.2% of the GDP.

Table 4. Value and structure of state aid granted in the EU states in the years 2010–2019

State	The value of state aid in 2010–2019		The structure of state aid granted in 2010-2019 (as %)						
	in EUR mln	as % GDP	Introducing capital	Grants	Warranties	Soft lending	Tax deferment	Tax exemption	Other
European Union (28)	798644.57	0.84	7.2	68.1	1.7	6.1	0.1	14.3	2.6
Belgium	18760.20	0.79	4.8	58.2	0.3	3.9	0.1	31.9	0.8
Bulgaria	4561.70	0.99	0.0	22.0	0.7	0.1	0.0	1.1	76.1
Czech Republic	17285.00	1.60	4.3	58.0	0.2	2.7	0.0	7.5	27.4
Denmark	28135.80	1.55	1.4	90.5	0.1	4.0	0.3	3.3	0.4
Germany	259688.40	1.45	5.8	81.7	3.2	0.5	0.0	8.7	0.1
Estonia	1241.00	1.02	0.0	93.5	3.0	0.1	0.0	0.7	2.7
Ireland	5548.90	0.16	8.5	61.4	2.1	0.8	0.0	27.1	0.1
Greece	14356.60	0.30	0.4	40.1	0.1	57.1	0.1	2.0	0.2
Spain	28592.20	0.34	0.7	64.3	7.3	5.6	0.3	21.7	0.2
France	138011.70	0.79	9.3	53.7	0.2	14.9	0.0	18.0	4.0
Croatia	2470.40	1.54	0.0	63.3	0.6	15.4	0.0	0.4	20.3
Italy	37233.70	0.31	5.7	56.9	2.1	25.0	0.0	7.0	3.2
Cyprus	976.10	0.46	0.0	94.3	0.0	0.0	0.0	5.4	0.3
Latvia	4704.00	1.00	0.0	95.6	0.9	0.4	0.6	2.5	0.0
Lithuania	2208.90	1.27	0.0	70.5	0.0	0.0	0.2	7.0	22.4
Luxembourg	1162.30	0.24	0.0	94.0	0.0	0.0	0.0	0.0	5.9
Hungary	15873.50	1.83	0.7	83.1	0.6	0.4	0.4	14.8	0.0
Malta	920.10	1.22	10.3	22.0	1.4	6.4	0.0	44.3	15.5
Netherlands	19219.00	0.35	0.4	74.7	1.9	0.9	0.9	21.0	0.1
Austria	15166.20	0.46	9.7	85.5	1.2	1.3	0.0	2.2	0.1
Poland	**49592.97**	**1.03**	**1.4**	**84.0**	**0.5**	**1.2**	**0.0**	**12.3**	**0.6**
Portugal	8632.00	0.45	4.4	26.5	0.3	16.4	0.8	42.3	9.3
Romania	7491.90	0.55	24.0	52.0	0.5	0.7	0.0	0.1	22.7
Slovenia	3421.80	0.88	2.2	81.6	0.8	7.3	0.1	8.0	0.1
Slovakia	2467.00	0.48	0.8	64.6	0.0	0.0	0.5	30.6	3.6
Finland	14078.50	1.16	14.0	78.4	0.9	0.5	0.2	5.9	0.2
Sweden	31125.00	0.91	43.1	21.9	0.1	3.5	0.0	31.2	0.1
United Kingdom	65719.70	0.38	6.8	60.6	0.5	1.6	0.1	29.2	1.2

Source: based on own study (Eurostat, 2021).

Based on the form of aid, European Union grants were dominant (68.1% of the value of the aid granted in the years 2010–2019). Another significant source of state aid involved tax-based preferences (14.4%). Other forms of aid were of marginal significance. The structure of state aid based on the form of its granting exhibited a high variety across the states. In 23 out of 28 EU states the aid granted in the form of grants dominated, and were of the highest significance in Latvia, Cyprus, Luxembourg, Estonia and Denmark (over 90% of the value of all the state aid granted in those countries). Tax-based aid dominated in Malta (44.3%) and Portugal (42.3%). It is well worth noting that the EU considers state aid in the form of tax preferences to be one of the most harmful ones; therefore, it should be gradually limited (Sosnowski, 2014). Tax preferences increase the costs of tax collection, cause excessive complexity in the tax regulations and erode the tax base, which reduces the potential for a reduction in tax rates for all taxpayers and results in the need to increase the fiscal burden due to incomplete feeding of the budget with tax revenues.

Apart from Malta and Portugal, mentioned before, state aid in the form of tax-based preferences took second place among the forms of state aid in 15 EU states. The least significant was tax aid in Luxembourg, Romania, Bulgaria and Croatia. In Poland the share of tax-based state aid within the state aid structure was 12.9%, i.e. below the European average, placing Poland among the seven states with the lowest significance of tax-based aid. This may result from the fact that in Poland, considered to be one of the least developed regions of the European Union, state aid in the form of grants was clearly dominant, including grants financed from the EU funds devoted to realising the cohesion policy and regional growth.

CONCLUSIONS

The paper presents the forms of taxation of state aid available in Poland alongside their significance within the structure of aid granted in the European Union. State aid in the form of tax-based instruments is currently granted based on the Tax Ordinance Act, the Act on Taxes and Local Fees as well as the Act on Special Economic Zones, and, since 2018, based on the New Investment Support Act.

Tax preferences are a significant form of state aid granted in Poland, as they are the second (after grants) form of state aid, in terms of their fiscal value. However, while in the research period such grants constituted as much as 84.0% of the value of aid granted in Poland, the share of aid granted in the form of tax preferences (groups A2 and C2) amounted to only 12.3% of the whole. Moreover, in the research period, the share of tax aid in the structure of the state aid granted decreased from 13.9% in 2010 to 12.0% in 2019.

The importance of state aid in the form of tax-based instruments differs across the respective EU states. In most of them tax preferences are the second, in terms of value, form of state aid; however, their share within the structure of the aid granted varies to a large extent (from 0% in Luxembourg to 44.3% in Malta). State aid in the form of tax preferences constituted 14.4% in the European Union in the research period, and its share was slightly higher than in Poland.

The subject of state aid, including its tax-based forms, appears to be especially intriguing as well as significant in contemporary tax studies. The above considerations, the research and the results may thus constitute the basis for undertaking more extensive research in this area.

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Summary

The paper presents the structure of state aid in Poland as compared with other EU member states, with an emphasis on tax instruments. Tax preferences are a significant form of state aid in Poland, and their importance in the structure of state aid provided differs across the EU states. The added value of the paper is to provide current knowledge concerning the sources of tax-based forms of state aid. The theoretical aspects of state aid are discussed and the tax-based forms of state aid in Poland presented. The empirical research was based on the following research methods: descriptive analysis, quantitative analysis and comparative analysis. The statistical data has been drawn from the Consumer Protection Offices on state aid granted to Poland, the latter data being transferred to the European Commission and forming the basis for the EU papers for the State Aid Scoreboard available in the Eurostat database.

Tax preferences are a significant form of state aid granted in Poland, as they constitute the second most important (after grants) form of state aid, in terms of their financial value. The importance of state aid in the form of tax-based instruments differs across the EU states. In most of them tax preferences are the second most important, in terms of financial value, form of state aid. However, their share within the structure of the aid is to a large extent varied. The subject matter of state aid, including particularly its tax-based forms, seems to be especially intriguing as well as significant in contemporary tax studies.

Keywords: state aid, tax preferences, special economic zones, European Union.

Podatkowe formy pomocy publicznej w Polsce w porównaniu z pozostałymi państwami Unii Europejskiej

Streszczenie

W niniejszym opracowaniu została przedstawiona struktura pomocy publicznej w Polsce w porównaniu z pozostałymi państwami Unii Europejskiej, ze szczególnym uwzględnieniem instrumentów podatkowych. Preferencje podatkowe są istotną formą pomocy publicznej w Polsce, a ich znaczenie

w strukturze udzielanej pomocy różni się w poszczególnych państwach Unii Europejskiej. Zasadniczą wartością artykułu jest dostarczenie aktualnej wiedzy na temat źródeł podatkowych form pomocy publicznej. W niniejszym opracowaniu najpierw omówiono teoretyczne aspekty pomocy publicznej, a następnie przedstawiono podatkowe formy pomocy publicznej w Polsce. W dalszej części przeprowadzono badania empiryczne. W opracowaniu zastosowano następujące metody badawcze: analizę opisową, ilościową oraz porównawczą. Dane statystyczne zaczerpnięto z raportów Urzędu Ochrony Konkurencji i Konsumentów na temat pomocy publicznej udzielonej w Polsce, które są przekazywane do Komisji Europejskiej i stanowią podstawę unijnych opracowań pt. *State Aid Scoreboard* dostępnych w bazie danych Eurostat.

Preferencje podatkowe stanowią istotną formę pomocy publicznej udzielanej w Polsce, gdyż są drugą (po dotacjach) postacią pomocy publicznej, biorąc pod uwagę jej wartość. Znaczenie pomocy publicznej w postaci instrumentów podatkowych różni się w poszczególnych państwach Unii Europejskiej. W większości z nich preferencje podatkowe są drugą co do wartości formą przyznawanej pomocy publicznej, jednak ich udział w strukturze udzielonej pomocy jest mocno zróżnicowany. Problematyka pomocy publicznej, w tym w szczególności jej podatkowych form, wydaje się być niezwykle intrygująca oraz ważna we współczesnej nauce finansów.

Słowa kluczowe: pomoc publiczna, preferencje podatkowe, specjalne strefy ekonomiczne, Unia Europejska.

JEL: H20, H25, H71.

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Regional differentiation of direct support for farmers in Poland as exemplified by selected regions

Introduction

The absorption of EU funds by Polish farmers, as represented by the amounts of payment per hectare of agricultural area, displays strong spatial diversification (Rudnicki, 2013). It results, among others, from the production specialisation of regions and interregional differences in the area structure of agricultural holdings. This, in turn, is largely determined by natural and climatic conditions (Tłuczak, 2015). According to Kozera (2011), the actual absorption capacity of EU funds is influenced by a range of factors, some of which are historically – or politically – conditioned.

Resources distributed from the direct payments scheme constitute a large portion of funds obtained by farmers. In Poland, the sum allocated for financing direct payments in 2018 slightly exceeded EUR 3.46 billion[2], with less than EUR 29 million[3] (i.e. approx. 0.83%) coming from the state budget.

The dispersion of the average level of support granted to farmers under the direct payment scheme may be analysed on a variety of levels. In particular, the dispersion of the average level of support (as expressed in monetary units per

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[2] This amount is composed of what is known as the national ceiling set out in Annex II to the Regulation… (2013) and the amount allocated for transitional national aid under which in Poland in 2018 – pursuant to the Act… (2015) – only the so-called decoupled payment for tobacco was applied.

[3] The amount allocated for financing decoupled payment for tobacco was indicated in the grounds for the *Regulation…* (2018).

hectare of agricultural area) among the Member States of the European Union is measured, and its consequences are studied. According to Hamulczuk and Rembisz (2009), to ensure the improved efficiency of the sector, the dispersion of direct payment levels should follow from the productivity of production factors, and the volume of transfers to agriculture should take into account the relation between the level of income in agriculture and the level of income in non-agricultural sectors of the economy.

Another aspect measured is the unequal allocation of support among the beneficiaries in individual Member States and in the whole European Union. This is paired with considering, i.a., the significance of this issue in the context of implementing the assumed objectives of the direct payments scheme. Sinabell, Schmid and Hofreither (2009) emphasise that direct payments are addressed particularly at a small number of very large agricultural holdings and that the situation remains stable over time. It follows from Severini and Tantari's (2015) calculations that the concentration of direct payments is highly unequal in the Member States of the European Union and reaches very high values in some of them; the majority of the variability of support concentration can be explained by differences in the level of concentration of land. Beluhova-Uzunova, Atanasov and Hristov (2017), in summarising the results of their analyses, state that the distribution of direct support in Bulgarian agricultural holdings is highly unequal. At the same time, they stress the need for a strong political will to direct support to a priority sector with a high value added, with a view to reducing regional and structural differences.

The studies conducted in this area also involve the issue of the impact that introducing various instruments have on the average level of support per holding when considered by region. According to Sadłowski (2018b), the optional instruments applied in Poland increased the average support provided to farms in central and eastern Poland; the average amount of support paid per farm would have been bigger in northern, western and southern voivodeships if optional instruments had not been implemented.

The objective of this study is to measure the dispersion of the unit level of support (EUR/holding), paid under the direct payments scheme, among voivodeships with a similar average agricultural holding size and to identify the reasons for this dispersion. To achieve this objective, the author verified the hypothesis that the dispersion of the average level of support per beneficiary among regions with only slight differences in the average holding size follows from the differences in the structure of support absorbed by farmers from the respective regions.

The discussed issues are important and topical due to the reform of the Common Agricultural Policy in relation to the next financial perspective and the process of designing the direct payments scheme at the national level within the new EU legal regulations, which is connected with this reform.

The author used statistical description methods, along with combo charts displaying shares and a choropleth map for result visualisation. A comparative analysis covered three Polish regions (Łódzkie, Śląskie and Lubelskie voivodeships), in which the average farm size is almost identical. The source material was data from the Agency for Restructuring and Modernisation of Agriculture regarding 2018.

The next section of this study discusses the instruments making up the direct support scheme for farmers in Poland, including the rules of granting individual payments and the unit amount of support (rates of payments). This is followed by a presentation and discussion of the results of calculations of the basic indicators providing information about the average level of support and its dispersion. Moreover, a comparative analysis of the structure of support absorbed in particular regions was performed. The summary returns to the hypothesis presented in the introduction and presents the basic conclusions for economic practice, while indicating the primary restrictions of the so-called coupled support.

Characteristics of direct support instruments

The direct support system currently used in Poland includes a dozen instruments[4] which can be grouped as follows:

1) decoupled area payments: the single area payment, the payment for agricultural practices beneficial for the climate and the environment, the redistributive payment, and the payment for young farmers;

2) crop area payments (for grain legumes, fodder plants, starch potatoes, sugar beets, hops, tomatoes, strawberries, flax and hemp);

3) livestock payments (for young cattle, cows, sheep and goats); and

4) payments for historical production volumes – tobacco payment[5].

The objective scope and level of financing[6] of those instruments exhibit certain differences, as a result of which they have a varied power of impact on Polish agriculture.

Area payments, which are granted irrespective of any specific crop production (i.e. the single area payment, the payment for agricultural practices beneficial for the climate and the environment, the redistributive payment, and the payment for young farmers), are not competitive to one another. Each of these payments can be granted simultaneously in respect of a given agricultural area, together with one of the sector-specific crop area payments (i.e. the crop area payment for grain legumes, the crop area payment for fodder plants, the crop area payment for starch potatoes,

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[4] See the Act… (2015).

[5] In Poland tobacco payment currently constitutes the only instrument of the so-called transitional national aid. This implies that this payment is the only aid envisaged under the direct support scheme, which is financed from the state budget.

[6] The level of financing must correspond to the limits determined in the *Regulation…* (2013).

the crop area payment for sugar beets, the crop area payment for hops, the crop area payment for tomatoes, the crop area payment for strawberries, the crop area payment for flax, and the crop area payment for hemp). In other words, all the decoupled area payments, plus one of the sector-specific crop area payments can accumulate, i.e. a given agricultural area can be covered by these payments simultaneously.

Table 1. Direct payment rates in 2018

Support instrument	Payment rate
single area payment	EUR 107.35/ha
payment for agricultural practices beneficial for the climate and the environment	EUR 72.05/ha
redistributive payment	EUR 41.62/ha
payment for young farmers	EUR 41.06/ha
grain legumes area payment	EUR 167.52/ha (up to the first 75 ha of crops on the holding)
	EUR 83.76/ha (up to an area exceeding 75 ha)
fodder plants area payment	EUR 102.56/ha
starch potatoes area payment	EUR 249.19/ha
sugar beets area payment	EUR 349.66/ha
hops area payment	EUR 497.94/ha
tomatoes area payment	EUR 776.35/ha
strawberries area payment	EUR 246.49/ha
flax area payment	EUR 113.65/ha
hemp area payment	EUR 55.00/ha
young cattle payment	EUR 68.51/head
cow payment	EUR 87.37/head
sheep payment	EUR 23.70/head
goat payment	EUR 12.81/head
tobacco payment	EUR 0.82/kg (Virginia)
	EUR 0.58/kg (other tobacco)

Source: author's compilation on the basis of data contained on the website https://www.gov.pl/web/rolnictwo/wysokosc-platnosci-bezposrednich-stosowanych-w-2018-r (2020.09.16).

A separate group of sector-specific payments, next to crop area payments, provided from the so-called coupled support scheme[7] in Poland, is formed by livestock payments. These include the payment for young cattle, the payment for cows, the payment for sheep, and the payment for goats. These payments are independent of the use of land resources.

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[7] *De facto* these are not coupled payments *sensu stricto*, as the level of support granted under these instruments does not depend on the volume of agricultural production, but on the crop area of certain plants, or on the number of animals representing certain species.

The same applies to the tobacco payment – the level of support granted is unrelated to land resources intended for tobacco cultivation in the year during which the payment is applied for, as it is granted for the volume of tobacco production in the reference period, i.e. 2005–2006. Except for the need to satisfy the conditions for granting a single area payment[8], the current decisions of a farmer regarding such issues as crop area or outlays, do not influence the amount received as the tobacco payment. As has already been stressed, this payment is based on the production volume in the reference period which, when the application is submitted, is already a past period and is not subject to "updates".

Contrary to the decoupled tobacco payment, in the case of other instruments provided under the direct payments scheme, the exact amount of funds absorbed by farmers depends on numerous variables characterising their agricultural holdings in the year during which the payment is applied for. Most of these variables can be influenced by the ongoing decisions made by farmers. Strictly speaking, the amount of funds absorbed through:

1. the single area payment – is proportional to the total area of land used by the farmer for agricultural purposes, decreased by that part of the area which constitutes a surplus in the agricultural holding over the area generating a revenue of EUR 150,000 in respect of that payment (Sadłowski, 2018a);
2. the payment for agricultural practices beneficial for the climate and the environment – is proportional to the total agricultural area used by the holding employing certain agricultural practices (crop diversification, maintaining existing permanent grassland, and having a so-called ecological focus area on the agricultural area);
3. the redistributive payment – is proportional to the number of hectares used for agricultural purposes within the area forming part of the holding, falling within the range (3, 30] (Sadłowski, 2019);
4. the payment for young farmers – is proportional to the agricultural area of the holding which belongs to a farmer who is considered young, decreased by that part of the area which constitutes a surplus in the agricultural holding over the area of 50 ha (Sadłowski, 2017);
5. a given sector-specific payment for crop production – is proportional to the area designated for a given type of crop production, wherein:
   – as regards the crop area payment for grain legumes – the rate applicable to a crop area in the holding exceeding 75 ha corresponds to half of the rate applicable to an area not exceeding that limit,
   – as regards the crop area payment for fodder plants – the supported area in the holding is limited to 75 ha;

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[8] Pursuant to Article 17 (1)(1) of the Act… (2015), farmers are entitled to a decoupled tobacco payment if they satisfy the conditions to grant, and have applied for, the single area payment.

6. a given sector-specific livestock payment – depends on the number of animals
   of a given species, with certain limitations of various kinds (the age and sex of
   the animal, the minimum stock size and quantity limits).

   Therefore, the share in the annual financial envelope distributed in the country
within the direct payments scheme, which is attributable to farmers operating in
a given region, will change from one year to another. These changes are the result
of ongoing decisions made by agricultural holding managers (e.g. regarding the
manner of using land resources) and various types of processes taking place (e.g.
changes to the farmers' age structure or parcel conversion). These determine
the directions and dynamics of structural changes taking place in agriculture in
individual regions.

   Table 1, which compares the individual payment rates applicable in 2018,
shows that the level of unit area-related support at that time ranged in principle
from EUR 179.40/ha (for agricultural land which is part of a holding not owned
by a "young farmer", eligible only for the single area payment and the payment
for agricultural practices beneficial for the environment and the climate) to EUR
1 038.43/ha (for tomato cultivation by a "young farmer"). The calculation of the
maximum level of unit area-related support takes into account the redistributive
payment. Given that the redistributive payment in the variant used in Poland never
includes the entire area of the holding, it is not possible for the average amount
of area-related support per unit of agricultural land area to reach this level in
a specific holding.

Results

   The voivodeships under analysis are characterised by a similar average
holding size. In 2018, the average size of an agricultural holding in the Łódzkie
Voivodeship was 7.84 ha, in the Śląskie Voivodeship – 7.85 ha, and in the Lubelskie
Voivodeship – 7.86 ha (*Announcement…,* 2018). Despite this similarity, these
voivodeships display noticeable differences in the average amounts of payment
per beneficiary (Figure 1). In 2018, the difference between the average amount
of payment per beneficiary in the Lubelskie Voivodeship (with the highest value
of this variable among the voivodeships under analysis) and the average amount
of payment per beneficiary in the Śląskie Voivodeship (with the lowest value of
this variable among the voivodeships under analysis) equalled EUR 234/holding,
which corresponded to over 13% of the average level of support per farmer in the
Śląskie Voivodeship.

   This results from the fact that farmers operating in various voivodeships
absorb, on average per hectare of agricultural area, varied amounts of payment.
In consequence, despite the average holding area being almost identical in the

three voivodeships under analysis, they exhibit material differences in the average amounts of payment per beneficiary.
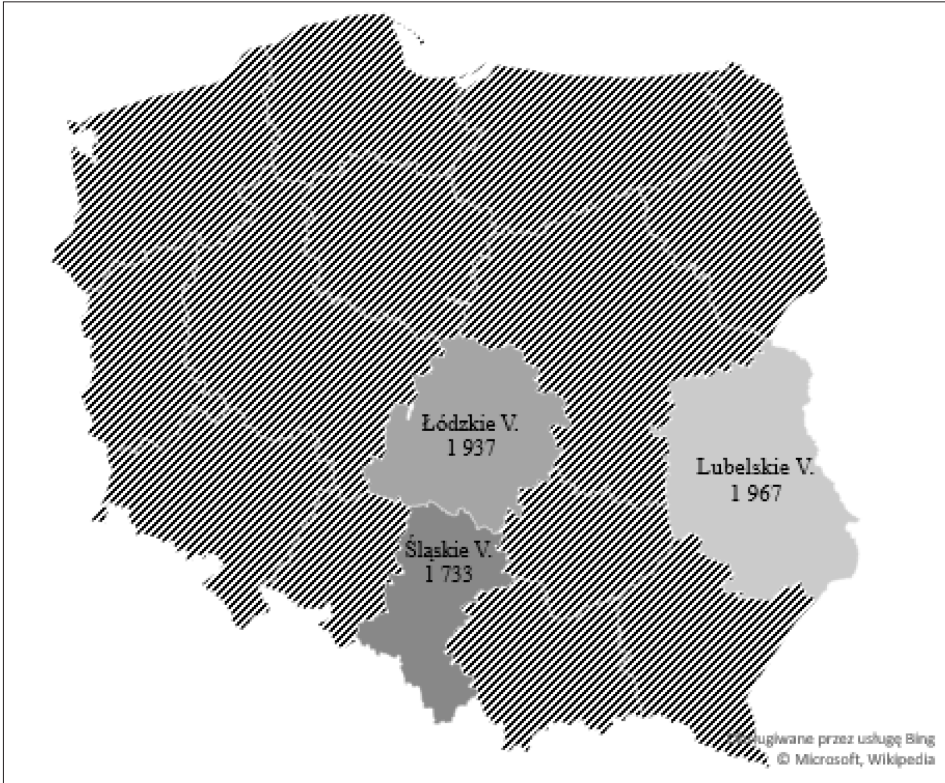
Figure 1. The location of the voivodeships under analysis and the average level of support from the direct payment scheme [EUR/holding] in 2018

Source: own study based on data from the Agency for Restructuring and Modernization of Agriculture.

The structure of funds absorbed by farmers from the direct payments scheme in the voivodeships under analysis is presented in Figure 2. The following factors had a pivotal impact on the differences in the average amounts of payment per beneficiary:
1. the share of coupled payments in the total amount of payment absorbed by farmers from a given voivodeship (as shown in Figure 2, among the compared voivodeships, the highest share is found in the Łódzkie Voivodeship – 14.6%),
2. the significance of the decoupled tobacco payment (as shown in Figure 2, among the compared voivodships, this payment is the most important in the Lubelskie Voivodeship, where its share in the total amount of funds absorbed by farmers is 4%).

Śląskie Voivodeship	31,8% 2,1% 8,2% 0,1% 10,8% 47,1% 8,3% 2,4%
Łódzkie Voivodeship	29,4% 9,8% 2,3% 0,0% 14,6% 43,8% 11,6% 3,0%
Lubelskie Voivodeship	28,8% 9,1% 2,0% 4,0% 13,1% 43,0% 6,3% 6,8%

Single area payment

Payment for agricultural practices beneficial for the climate and the environment

Redistributive payment

Payment for young farmers

Tobacco payment

Voluntary coupled support: livestock payments   crop area payments

Figure 2. The structure of support from the direct payment scheme in 2018, absorbed by farmers from the voivodeships under analysis

Source: own study based on data from the Agency for Restructuring and Modernization of Agriculture.

The voivodeships under analysis are characterised by a similar average holding size. Generally speaking, the average amount of payment per beneficiary

in a voivodeship represents the product of the average holding size in that voivodeship and the average amount of payment per hectare of agricultural area in that voivodeship. Therefore, the differences in the average levels of support per beneficiary, which are observed in the voivodeships under analysis, result primarily f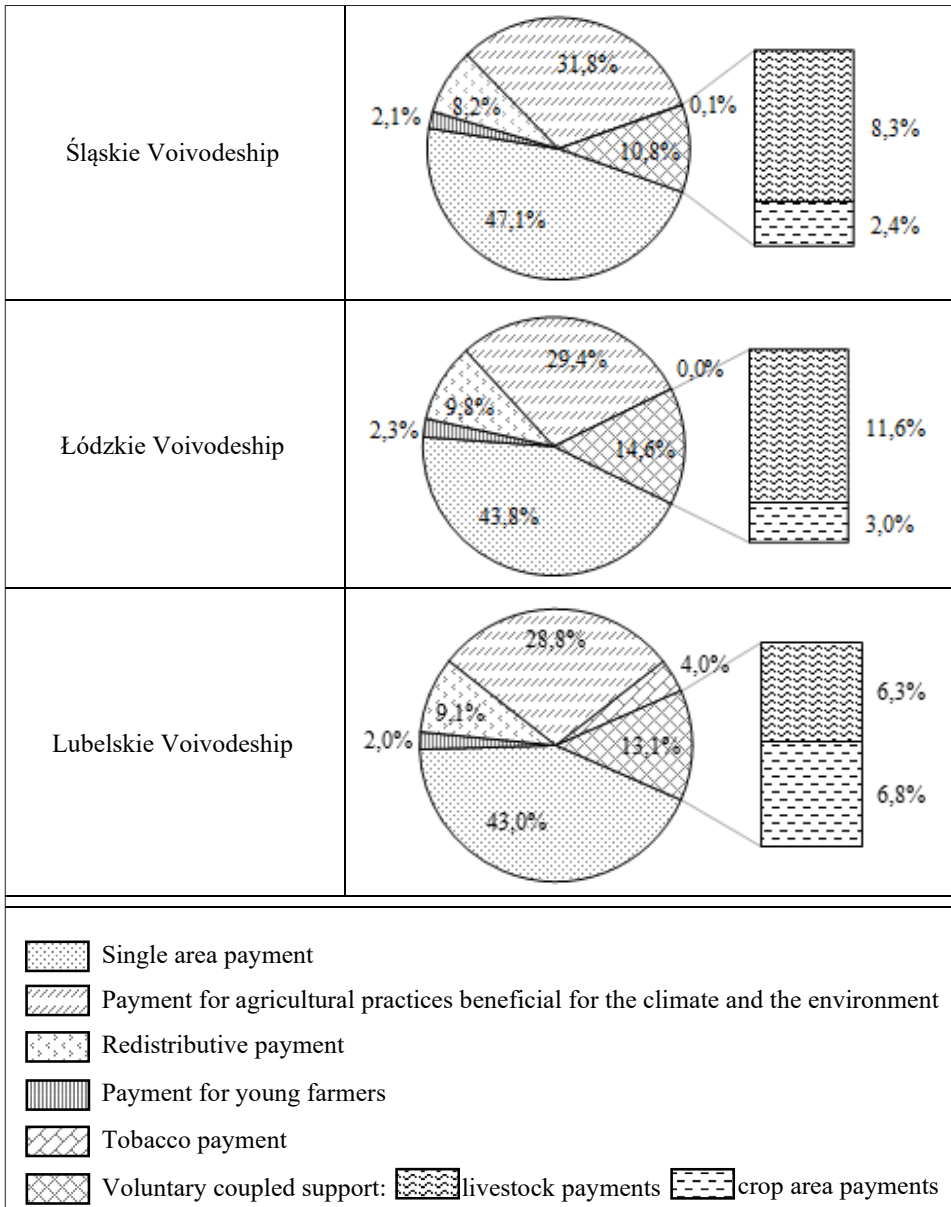rom differences in the average amounts of payment per hectare of agricultural area, which are absorbed by farmers operating in those voivodeships.

In 2018, the average amount of payment per hectare of agricultural area in the voivodeships under analysis was the highest in the Lubelskie Voivodeship (nearly EUR 248/ha), followed by the Łódzkie Voivodeship (approx. EUR 242/ha), while it was the lowest in the Śląskie Voivodeship (approx. EUR 223/ha). As has already been mentioned, these differences can be explained by the diversified shares of coupled support and tobacco payment in the structure of funds absorbed by farmers operating in those voivodeships. This share was the lowest in the Śląskie Voivodeship (10.9%), while in the Łódzkie Voivodeship it reached 14.6%, and in the Lubelskie Voivodeship, 17.1%. Generally speaking, for a given average holding size, the higher the share of coupled support or tobacco payment in the funds absorbed by farmers, the higher the average level of support per beneficiary.

Conclusions

While the Śląskie, Łódzkie and Lubelskie Voivodeships are characterised by a similar average holding size (slightly less than 8 ha), the difference between the highest and the lowest average amount of payment per beneficiary is as high as approx. EUR 234/holding.

Among the voivodeships under consideration, farmers from the Lubelskie Voivodeship absorb the highest amount of payments per hectare of agricultural area – nearly EUR 248/ha in average terms. These figures in the Łódzkie and Śląskie Voivodeships are lower by approx. EUR 6/ha and approx. EUR 25/ha, respectively. Given the comparable average areas of agricultural holdings in these three voivodeships, this discrepancy translates into differences in the average amounts of payment per beneficiary.

When comparing the structure of support granted to farmers from the three voivodeships, one can note the lowest share of coupled payments in the Śląskie Voivodeship, together with a negligible share of tobacco payment. These factors have a decisive impact on the level of support per beneficiary, which is the lowest in the Śląskie Voivodeship compared to the other two voivodeships under analysis. In contrast, the highest amount of payment per beneficiary was found in the Lubelskie Voivodeship where the total share of coupled payments and tobacco payment is higher than in the Śląskie and Łódzkie Voivodeships by 6.2 and 2.5 percentage points, respectively.

The hypothesis proposed in the introduction, that the dispersion of the average level of support per beneficiary among regions with only slight differences in the average holding size, follows from the differences in the structure of support absorbed by farmers from the respective regions, has been confirmed.

On the basis of the presented results, it can be concluded that an instrument with a particularly strong potential to influence the level of support in absolute terms (per holding) and in relative terms (per 1 ha of agricultural land in a holding) is the so-called voluntary coupled support. Since a member state has a relatively wide margin of discretion in establishing the conditions for granting this support and the level of its financing, and since there are relatively large differences between regions in terms of area structure of farms and agricultural production specialisation, member states may, by means of this instrument, significantly adjust the distribution of funds between regions by reducing the strength of the link between the amount of aid absorbed by each region and their agricultural land areas. Actions of this kind may be motivated by the desire to compensate for social inequalities or the desire to stimulate economic growth in peripheral areas.

It should be pointed out that coupled support, although it is not granted for the quantity of agricultural products (as the name would imply), but assumes the form of area payments (in the case of plant production sectors) or payments for the number of animals held (in the case of animal production sectors), is not neutral to the volume and structure of agricultural production and improves the profitability and competitiveness of a given group of agricultural holdings at the expense of other groups.

Support granted for the crop area of selected plants increases the profitability of managing crops covered by this support in comparison to other production areas, while remaining neutral to production intensity. The introduction of this type of support leads to the modification of crop structure involving the increase in the proportion of those crops which receive more support. Under conditions of incomplete use of the production potential, a sufficiently high amount of support will also increase production extensiveness by including land which was not previously used for production purposes (Sadłowski, 2016). The more a given plant requires special soil and climate conditions or the application of a specialised machinery stock to cultivate, the higher is the entry barrier to this production sector, and also the greater the advantages that introducing payments to the crop area of that plant could bring to the group of holdings operating in this sector. As a result, payments for the crop area of specific plants interfere with the competition conditions. They also make it difficult to introduce adjustments to the spatial distribution of agricultural production as initiated by market processes, and conducive to the rational use of the production potential (i.e. leading to the use of resources to produce those products for which there is effective demand).

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Summary

The objective of this study was to measure the dispersion of the unit level of support, paid under the direct payment scheme, among voivodeships with a similar average agricultural holding size, and to identify the reasons for this dispersion. It begins with a description of the shape of the direct payments scheme in Poland. The paper further presents and analyses the results of the measurement of dispersion of support as part of the direct payment scheme between voivodeships with no significant differences in the sizes of agricultural holdings. It has been shown that this dispersion is a result of the differences in the structure of support absorbed by farmers in individual regions. The measurement of the support level is the average aid amount per unit of agricultural area and the average aid amount per one beneficiary. The source material used in this paper was the data from the Polish paying agency responsible for direct payments made to farmers, i.e. the Agency for Restructuring and Modernisation of Agriculture. The reference period of the study is 2018. As three voivodeships with the most similar average farm size were selected, the study covered Łódzkie, Śląskie and Lubelskie Voivodeships. The analysis was performed with the use of descriptive statistics methods. The data was visualised with the use of pie and bar charts, and a choropleth map.

It was found that the instrument with a particularly strong potential for the impact on support level in absolute terms (per one holding) and relative terms (per 1 hectare of agricultural land in a holding) is the so called voluntary coupled support. With this instrument, European Union Member States can adjust the distribution of funds between individual regions, reducing the strength of a relationship between the volume of support absorbed by individual regions and their abundance in agricultural land. The intention of such actions may be to compensate for social inequalities or to stimulate growth in peripheral areas.

Keywords: Common Agricultural Policy, direct payments, average level of support.

Regionalne zróżnicowanie wsparcia bezpośredniego dla rolników w Polsce na przykładzie wybranych województw

Streszczenie

Celem opracowania było rozpoznanie zróżnicowania jednostkowego poziomu wsparcia, wypłacanego w ramach systemu płatności bezpośrednich, między województwami o zbliżonej średniej wielkości gospodarstwa oraz identyfikacja przyczyn tego zróżnicowania. W pierwszej kolejności przybliżono kształt systemu wsparcia bezpośredniego w Polsce. Następnie przedstawiono i omówiono wyniki pomiaru dyspersji średniego poziomu wsparcia w ramach systemu płatności bezpośrednich, występującej między województwami nieróżniącymi się istotnie średnią wielkością gospodarstwa. Wykazano, że zróżnicowanie to jest następstwem różnic w strukturze pomocy zaabsorbowanej przez rolników z poszczególnych regionów. Za miernik poziomu wsparcia przyjęto średnią kwotę pomocy przypadającą na jednostkę powierzchni użytków rolnych oraz średnią kwotę pomocy przypadającą na beneficjenta. Jako materiał źródłowy wykorzystano dane polskiej agencji płatniczej odpowiedzialnej za wypłatę płatności bezpośrednich na rzecz rolników, którą jest Agencja Restrukturyzacji i Modernizacji Rolnictwa. Zakres czasowy badań to 2018 r. Jako, że do porównań wybrano trzy województwa o najbardziej zbliżonej średniej powierzchni gospodarstwa, zakres przestrzenny badań obejmuje województwo łódzkie, województwo śląskie i województwo lubelskie. Analizę przeprowadzono z wykorzystaniem metod opisu statystycznego. Do wizualizacji danych zastosowano wykresy udziałowe (kołowo-kolumnowe) i kartogram.

Stwierdzono, że instrumentem o szczególnie silnym potencjale oddziaływania na poziom wsparcia w ujęciu absolutnym (na gospodarstwo) i względnym (w przeliczeniu na 1 ha użytków rolnych gospodarstwa) jest tzw. dobrowolne wsparcie związane z produkcją. Za pomocą tego instrumentu państwa członkowskie Unii Europejskiej mogą w znacznym stopniu korygować rozdział środków między poszczególne regiony, zmniejszając siłę związku wielkości pomocy absorbowanej przez poszczególne regiony z ich zasobnością w użytki rolne. Intencją takich działań może być kompensowanie nierówności społecznych czy stymulowanie wzrostu na obszarach peryferyjnych.

Słowa kluczowe: Wspólna Polityka Rolna, płatności bezpośrednie, średni poziom wsparcia.

JEL: Q18.

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Conditions for the career development of young people with higher education from a regional perspective[2]

INTRODUCTION

Changes taking place in the contemporary world, such as rapid advances in techniques and technologies, e.g. information and communication technology, have stimulated a faster development of knowledge and encouraged businesses to adjust to them, including the requirements for their employees. Employees and young people have been entering higher education at an unprecedented scale. The net enrolment index for the 2010/2011 academic year was 40.8% (gross enrolment index: 53.8%) (*Szkoły wyższe…*, 2018), compared to 9.8% for the 1990/1991 academic year (gross index – 12.9%)) (*Szkoły wyższe…*, 2011). Consequently, these processes have led to an influx of a large population of higher education graduates onto the labour market, who find it increasingly difficult to land a labour market is adequate for their qualifications. The situation is even worse in poorly-developed regions, especially for young adults with this level of education. The complex picture on the job market as well as a scarcity of job offers for university graduates repeatedly lead them to leave the problem area for larger urban centres which offer the possibility of finding employment in accord with the qualifications, better opportunities for career progression and higher earnings.

The aim of this study is to present the regional conditioning of professional careers and the perspectives of their development based on the case of young people with higher education in the Świętokrzyskie voivodeship. The term professional career is presented, its stages, the situation of young people including those with higher education, as well as factors limiting its development in the

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[2] Mini Grant of the Rector of Jan Kochanowski University of Kielce for 2019 and 2020.

region. The article is of a cognitive character, with the research method being a combination of literature studies and statistical data analysis. In order to achieve full comparability, the study is based on the data available up until the end of 2017 due to some shortages in data for the Świętokrzyskie voivodeship regarding the following years.

The professional career and its stages

From *A Dictionary of Foreign Words and Foreign Phrases*, the term "career" either derives from a late-Latin word *carraria,* denoting "a road for carts", or a French word *carriere* which translates as "a road", "a racing track" or "a run" (Kopaliński, 1994). A professional career is defined here as: "the course of one's occupational, political and social activities; a rapid social advancement, professional advancement, successes, prosperity, a sought-after position, a satisfactory status". In turn, *A Dictionary of the Polish Language* defines "career" as "rising higher in status within a given profession or within a given field (also: a success achieved in this profession or this field)" or simply as "the course of one's professional work throughout one's entire life" (*Słownik…*, http). A professional career, then, can be perceived as a professional path whose essence lies in professional achievements, a change in behavioural patterns connected with on-the-job duties (professionalisation of activities) or the sequence and variety of tasks undertaken during its course.

As Hall noted, a career is a polysemic concept, which results in the existence of many different methods in specifying the semantic scope of this concept. He pinpointed four of the most commonly encountered semantic profiles containing the concept of professional career (Bohdziewicz, 2008, pp. 26–27):

1. Moving forward (a series of functions or positions, where each subsequent position is better than the one preceding it).
2. Executing one's profession.
3. A sequence of jobs undertaken in a lifetime.
4. A sequence of experiences related to the professional role that one has assumed.

Makin and others have expanded the approach stated in point 4 by adding a sequence of experiences gained while taking on various professional roles, as well as experiences gained outside professional activities and which have an influence on the manner one adopts fulfilling these roles and the achievements that one accumulates (Bohdziewicz, 2008, p. 27).

The polysemy of the term *professional career* makes it possible to define it in both a narrower and broader sense. In the former sense, by a *professional career* one means a subsequent series of undertaken functions or positions, where each next one is better than the previous. Attention should be drawn to a forward movement that an employee experiences during his or her career. In a broader

perspective, one can speak of a sequence of experiences gained while fulfilling various professional roles, as well as experiences gained outside the professional activities and which affect the manner and the effects of assuming these roles (Makin, Cooper, Cox, 2000, pp. 50–51).

Goffmann stresses the dual nature of a career, and distinguishes its objective aspect as shaped by the labour market and work environment, and its subjective one reflected by perceiving professional experiences through the values and inspirations that one holds (Bohdziewicz, 2008, p. 28). Schein makes a clear-cut distinction between an objective type of career, which can be described by the environment in which it takes place, and a subjective career, which is a given individual's internal assessment made as a result of confronting an actual career with one's aspirations in this respect, and in effect generating a particular level of satisfaction (Bohdziewicz, 2008, pp. 30–31). Hence, the objective career is linked to external aspects, therefore observable and easier to identify, such as: the position one currently holds, the roles and functions one currently assumes, the nature of the responsibilities, achievements, degree of authority, income level or social prestige and reputation among experts in a given field. It is far more difficult to incorporate the subjective aspect of 'career' into definitive and researchable structures (Bohdziewicz, 2008, p. 30). Within the subjective aspect one can distinguish: an individual's degree of satisfaction with career advancements so far, which results from a subjective assessment of the achievements in question, made through individual aspirations and expectations, an increase in the individual's competence capital (knowledge, skills and professional experience), which attests to the individual's development, professional merit, as well as professional and organisational identity.

Kowalczyk highlights that in today's turbulent times, the complexity and adaptability of a career are of crucial importance (Kowalczyk, 2014, p. 215). Kowalczyk defines complexity as a variety of the individual's activities including "institutional experience" and "spreading out in time", whereas adaptability is defined as an ability to adapt to changes in operating conditions, which requires time and an acquisition of new competences. With regard to young people, Cybal-Michalska emphasises the significance of proactive behavioural patterns which favour an earlier and better fit with the labour market since a proactive individual "takes causative actions" (Cybal-Michalska, 2014, p. 379). Such a person takes early initiative in seeking a job, formulates and pursues a clear objective, and, therefore, is in possession of a plan designed to pursue a chosen career. Among proactive actions, Bańka lists readiness and involvement in taking the initiative, determining a professional role, which can be indicative of self-efficiency or a self-initiating approach to work, which goes beyond the formal requirements or assigned responsibilities (Cybal-Michalska, 2014, p. 380).

There exist various models and examples of professional careers, but today one can observe a move toward competence-based careers, where employees strive to

develop their existing competences and acquire new ones. A new and better-known concept is that of "a career without limits". This assumes that an individual is proactive in the process of shaping his or her career, both seeking and initiating opportunities for its fulfilment. An individual is ascribed responsibility for managing his or her own career, which goes beyond the boundaries of a single organisation (Pocztowski, 2018, p. 333). What happens here is the limiting of the role of an organization in the development of an individual's professional career, and the loss of linearity in the career path. This allows for the fact that certain areas of professional activity and private life are being combined in order to ensure professional success (Pocztowski, 2007, p. 322). An individual's competences and their development share the aim of adding to the value of one's own human capital as regards labour market needs and one's own position on this market. Here, considerable significance is attached to raising and strengthening one's own professional awareness, understanding of one's own potential, aptitudes, expectations and limitations. This is used in managing one's own career under the specific conditions in the labour market.

A professional career is, then, equated with an individual's development in the course of his or her professional life and includes the possibility of managing this development (conscious shaping of professional life). As Cybal-Michalska remarks "career development begins at the start of one's life and continues ceaselessly till its end" and it provides "an opportunity to eventualise the conception of oneself" (Cybal-Michalska, 2014, pp. 37–38). Therefore, with regard to observable external features, a professional career can be viewed as a sequence of professional roles (positions) served by an individual during various stages of his or her life cycle. On the basis of numerous concepts of professional career development, a universal four-stage model has been developed (Pocztowski, 2018, pp. 335–336). The specific stages of a career correspond to the relevant stages of the human life cycle. These stages are dominated by particular needs and objectives that each wishes to attain from each respective career stage:
1. Preparation for a career (age 0–25 years) – childhood and adolescence.
2. Early career (age 8–35 years) – early adulthood.
3. Middle career (age 35–55 years) – mid-adulthood.
4. Late career (age 50 years – retirement) – late adulthood.

From the perspective of young people, including students in their final year or university graduates, it can be observed that the early career, and in particular the moment of entering the labour market, is the most essential. The early career encompasses a conventional period between the ages of 18 and 35 years and is characterised by, among other things, making a career choice, training, starting a professional life, gaining professional experience, and forming an orientation towards one's own professional career (Pocztowski, 2018, p. 336).

Kowalczyk underlines that a career and its progression depend on many factors. These include subjective factors, such as: personality, hierarchy of needs and values, abilities as well as state of health and physical abilities. There are also

situational factors, including the education system, the upbringing pattern, social support, organisational factors or more distant ones, such as the current situation on the labour market, the field of operation and its condition, legislation, or the geopolitical situation (Kowalczyk, 2014, p. 223). Super mentions subjective and situational determinants of a career. The subjective ones incorporate self-awareness, attitudes, interests, needs, values, achievements, general and specific abilities as well as biological inheritance. Situational determinants, on the other hand, include family, society, school, employment procedures, socio-economic conditions, historical changes or social structure (Hornowska, Paluchowski, 2002, p. 275). Pocztowski stresses, however, that a professional career can be fulfilled under given circumstances (nature of occupation, autonomy, working conditions, income, job security, position in a hierarchy, status, authority) in which one experiences successes and failures, which shape one's attitudes and behaviour related to work. This space is determined by a configuration of many factors and is dynamic in character, and is the resultant of the objective and subjective dimensions of a career (Pocztowski, 2007, p. 310). As he states, "the objective dimension of a professional career can be described with such factors as the current situation on the labour market, the number and types of working positions, functions that one performs, opportunities for participating in the work of various bodies, conditions for carrying out particular duties or conditions for performing a given function as well as the reasons, directions and the intensity of one's mobility. On the other hand, the subjective dimension is linked to the value system that one holds to, the aspirations related to professional activity and the way that one perceives and experiences events affecting the development of one's professional career".

Opportunities for career development for young people are determined by their level of education and the socio-economic situation in the region where they live and work. Some essential determinants for the development of a professional career include the economic structure of a given region, salary level, the landscape on the labour market, the latter including unemployment rate and employment pattern. On observing limited career prospects, many young people decide to leave their region while still at university or immediately after finding their first job. The migration of these people leads to the impoverishing of the young human capital in the region, thus deepening its demographic problems and diminishing its growth potential.

The situation of young people (including those with higher education) in the labour market in the Świętokrzyskie voivodeship

The situation of young people in the labour market is poorer in comparison to other age groups, which is mainly caused by the lack of professional experience. This is especially visible in the underdeveloped region of the Świętokrzyskie

voivodeship. In the Świętokrzyskie voivodeship, the labour market activity and the employment rate of young people is lower, while the unemployment rate among the same age group is far higher in relation to the national figures (Szydlik-Leszczyńska, 2019, pp. 149–155). In 2017, for the Świętokrzyskie voivodeship, the unemployment rate among young people aged 15–24 was 21.3% (Poland: 14.8%), and for people aged 25–34 it was 7.5% (Poland: 4.5%) in relation to a global unemployment rate for the whole voivodeship of 7.5% (*Aktywność ekonomiczna ludności Polski*…, 2018; *Aktywność ekonomiczna ludności w województwie świętokrzyskim*…, 2018).

As regards the percentage share in the total number of the unemployed, the largest group among the unemployed was constituted by people aged 25–34. Comparing the figures for Poland and the Świętokrzyskie voivodeship, it is again visible that the percentage share of registered unemployed people aged 25–34 was higher in the Świętokrzyskie voivodeship than in Poland (29.7% compared to 28% for Poland) (*Bezrobocie rejestrowane*…, 2018).

Taking into account the accelerated demographic ageing in the Świętokrzyskie voivodeship (in comparison to Poland), the larger percentage share of registered young inhabitants of the region in the total number of unemployed additionally accounts for their inferior position in the labour market. This situation is also difficult for people aged up to 25 and young people aged up to 30 (including those with higher education) who are considered to be people in a special situation in the labour market. The unemployment of young people with higher education affects mainly people aged 25 or over – the percentage share of registered unemployed people for those up to 30 years of age is higher than for those up to 25 years of age (in 2017 respectively 33.8% and 6.5% for the Świętokrzyskie voivodeship, compared to 31.9% and 6.3% for Poland). Within the group of people aged up to 30, the situation of young people with higher education is only better than people with secondary education. The data is even worse for the voivodeship than for Poland. For Poland, the percentage share of the unemployed aged up to 30 with higher education in a special situation in the labour market accounts for 31.9%, as compared to 33.8% for the voivodeship (*Sytuacja na rynku pracy*…, 2018; Załącznik 1…, 2018). Higher rates for the voivodeship also apply to unemployed young people up to the twelfth month after graduation (i.e. school graduates). In 2017, the share of this population in the total number of the unemployed for the voivodeship constituted 4.5%, as compared to 3.6% for Poland (*Sytuacja na rynku pracy*…, 2018; www.stat.gov.pl/BDL).

Amongst the graduates who start their first job in the national and the Świętokrzyskie labour market, one can notice the predominance of graduates with higher levels of education (tertiary, post-secondary and vocational secondary). In the region they constitute a bigger share of all the graduates starting their first job than what the statistics show for the whole of Poland (66.6% as compared to 61.5%) (www.stat.gov.pl/BDL). For graduates with tertiary education alone, the

figures are 40.9% and 39.5%. In addition, the mass migration of young people from the Świętokrzyskie voivodeship to the neighbouring regions emphasises an even more difficult situation of young educated people in the voivodeship.

Regional conditions for the development of the professional career of young people with higher education in the Świętokrzyskie labour market

The Świętokrzyskie voivodeship is marked by a low level of urbanisation, which has an impact on the low absorptive capacity of the labour market in this area (Szydlik-Leszczyńska, 2019, pp. 165–172). The settlement network comprises 31 towns (including only Kielce having the county rights, and placed within a group of cities with 200,000 inhabitants), and 2490 villages. The area of the Świętokrzyskie voivodeship accounts for 3.7% of the whole area of Poland (in 15th place, before the Opolskie voivodeship). In terms of population, the Świętokrzyskie voivodeship is in 13th place nationally, and in 2017 its population constituted 3.3% of the total population of Poland (*Powierzchnia i ludność*…, 2017). The number of inhabitants in the Świętokrzyskie voivodeship has been decreasing for many years, which is caused by a very low birth rate and a negative migration balance (Szydlik-Leszczyńska, 2017, pp. 110–112). "The most unfavourable and distressing is the fact that young people aged up to 24 are the preponderant migrating group, and account for 48% of the emigrating population. Out of that 48%, nearly 28% hold a university or college degree, and more than 30% have received undergraduate, post-secondary or secondary education – which they have completed in schools and colleges in Kielce" (Piasta, http). The Świętokrzyskie voivodeship adjoins six regions of considerable demographic potential, inhabited by approximately 52% of Poland's population. From the total number of people who arrived in the Świętokrzyskie voivodeship between 2002 and 2011, 83.4% came from those six voivodeships (most from the Śląskie and the Mazowieckie voivodeships), which indicates that the region attracts mainly inhabitants from the immediate vicinity and is not attractive to the inhabitants of other voivodeships.

The employment pattern in the Świętokrzyskie voivodeship is a lot less favourable than in Poland as a whole. The agricultural sector of the voivodeship employs 31.6% of those in employment (Poland: 16%), the industrial sector employs 22.6% (Poland: 26.5%), and in the services sector, the figures for the voivodeship stand at 45.8% (Poland: 57.5%) (*Analiza i ocena*…, 2018, p. 22). It all suggests a relatively lower number of workplaces for people with higher education, more intense competition, and increasing difficulty in settling into the labour market in the region. Besides, a major barrier to the development of companies (especially production ones, which generate the biggest demand

for jobs and provide young people with an opportunity to settle into the labour market) is formed by a significant number of areas of natural beauty protected by law. Such areas constitute as much as 66% of the voivodeship's total area (the first rank in the country).

The Świętokrzyskie voivodeship has a clear economic specialisation in the agri-food sector and industry, especially the mineral industry and metalwork (including the foundry industry). Świętokrzyskie belongs to the smallest and the least developed voivodeships in Poland and to the group of top 20 least developed regions in the European Union. Over the past few years, it has been noticeable that Świętokrzyskie's contribution to the national GDP has decreased – between 2007–2008, Świętokrzyskie's GDP accounted for 2.7% of the national GDP, whereas between 2012–2015 it dropped to as low as 2.4%, which is indicative of a fall in the economic significance of Świętokrzyskie in comparison to other voivodeships in Poland. As for the number of national economic entities per 10,000 inhabitants, Świętokrzyskie ranks significantly below the national average, but it leads in the average figure for the voivodeships of eastern Poland. It all proves that the voivodeships' inhabitants are more entrepreneurial than other inhabitants of the eastern regions, but at a national level they still show a somewhat insufficient inclination to start businesses. At the end of 2017, in the Świętokrzyskie voivodeship, there were 89 economic entities per 1000 inhabitants, whereas in Poland there were 112, proving that the voivodeship can be described as having a low volume of business activity (www.stat.gov.pl/BDL). The regional structure of the economy abounds with, as in Poland, small (including micro) economic entities (95.6%) operating for the needs of a local market with weak connections to foreign markets, and production companies in the region belong to a low-technology sector. Also, there are not many enterprises with foreign capital, which are often proponents of know-how and technology as well as creating demand for highly-qualified personnel (Szydlik-Leszczyńska, Leszczyński, 2014, pp. 15–16). An essential barrier to stimulating the market demand is represented by the low income level for households, including work-related income (in 2017, the average gross monthly pay in the corporate sector in the Świętokrzyskie voivodeship was 3,997 PLN, whereas in Poland it was 4,974 PLN). Unfortunately, the structure of income is also unfavourable and is characterised by a high percentage of work-unrelated income, such as pensions, annuities and state benefits (www.stat.gov.pl). Świętokrzyskie maintains one of the highest unemployment rates (7.5% in 2017, directly behind the Lubelskie voivodeship with 7.9%). Year after year the share of university graduates in the unemployment figures continues to rise. In the Świętokrzyskie voivodeship, in 2015, they accounted for 15.3% of all unemployed, and then in 2016, this figure rose to 16.3%. The corresponding figures for Poland also continued to rise, but at a slower rate and at a lower level: 13.3% in 2016 and 13.8% in 2017. The above types of conditions do not offer good career prospects for young people, especially those who have gained university degrees. Consequently, they migrate to the adjoining

voivodeships, i.e. the Mazowieckie and the Małopolskie voivodeships. These two voivodeships accounted for over 71% of the total negative migration rate in the region between 2002 and 2011. Świętokrzyskie showed a loss of inhabitants and, as a result, there was a hidden flow of human and financial capital taking place for the benefit of these two voivodeships (Rakowski, 2016, p. 26). The period between 2013 and 2017 witnessed a negative migration rate and these migration deficits particularly affected young people (mostly involving people aged 25–29 and 30–34, but also those aged 35–39 and 20–24) (*Sytuacja demograficzna…*, 2018, pp. 69–71). These people migrated along with their savings, which were then invested in large cities. Due to this, it is difficult to amass a suitable volume of savings which could then be invested in the region with a view to developing it and creating new workplaces (Rakowski, 2016, p. 27). Rakowski also underlines that the development of the road and rail infrastructure, on the one hand, facilitates the drain of resources and savings from problem regions, while also making them available for global companies which 'flood' local and regional markets with their products and, thus, lead to the bankruptcy of domestic businesses and, consequently, to an increase in the unemployment rate, which discourages young people from remaining in the region (Rakowski, 2016, pp. 27–28). As for internal migrations, these are equally intensive, but are slowing down. One can observe an increasing movement of city dwellers to the countryside and a slower movement of rural dwellers to the cities due to the dwindling employment opportunities in the cities. The motives for migration are mainly commercial in nature. A special feature of the Świętokrzyskie region, distinguishing it from others, is the fact that the rural areas in the region do not lose much to the urban areas with regard to their appeal as attractive places to live and as such are chosen by the incoming population (Rakowski, 2016, pp. 14, 16; *Migracje wewnętrzne*, 2014). People arrive in the region primarily for family reasons (54.9%) while taking up employment has a much more limited significance (12.6%). Between 2002 and 2011 the number of people emigrating from the Świętokrzyskie voivodeship was almost twice as high as the number of people immigrating into it, and the vast majority of these represented an urban population (62.9%) (Rakowski, 2016, pp. 18–19). The available data on the migration rates over the period 1974–2016 show that the migration rate throughout that period was negative. In the Kieleckie voivodeship (the former name of the Świętokrzyskie voivodeship) the highest negative migration rate occurred in 1979 (-6,342), whereas after 1998, the Świętokrzyskie voivodeship witnessed its highest negative migration rate in 2006 (-2,795) and its lowest one in 2016 (-1,971) (*Migracje wewnętrzne*, 2017). People leaving the Świętokrzyskie voivodeship in the period 2002–2011 primarily settled in the Mazowieckie voivodeship (29.6% of all who emigrated), the Małopolskie voivodeship (23.2%) and in total the adjacent voivodeships became new home to 85% of all those who left the Świętokrzyskie voivodeship (Rakowski, 2016, p. 20). Between 2002 and 2011, the Świętokrzyskie voivodeship was ranked number two as regards the intensity of emigration (after the Warmińsko-Mazurskie voivodeship),

which proves that there exist powerful forces pushing the inhabitants out to other regions. It is one of three voivodeships (alongside with the Warmińsko-Mazurskie and the Lubelskie voivodeships) which demonstrated the greatest difference between the influx and outflow rates (13.7 points). On average, for every 100 people arriving in the voivodeship, 185 people emigrated from it. Over the last five years, as a result of migration, the region has lost almost 12,000 people. In 2017, the intervoivodeship net migration rate stood at -2,400, which indicates a larger outflow of population than the year previously (-2,000 in 2016), with increased losses in demographically and economically essential age groups – especially people at a pre-productive age and younger employees (*Barometr zawodów 2019*, 2018, p. 9). Therefore, in the Świętokrzyskie voivodeship, one can observe a more rapid process of society ageing than in other regions of Poland. In the population structure of Świętokrzyskie a predominant share is represented by the inhabitants of rural areas, who in 2017 comprised 55.3% of the total population; by contrast, city dwellers constituted 44.7% (*Barometr zawodów 2019*, 2018, p. 9) (in 2012, the respective figures were 55.1% and 44.9% (*Młodzież na rynku pracy…*, http). In Poland, the situation is the reverse since the majority of Poland's population are city dwellers – 60.2% (in 2012 it was 60.6%). As mentioned earlier, the region is located at a relatively short distance from the centres of powerful socio-economic development of national significance. Such a location opens it to certain opportunities, but it also poses a threat to the development of the Świętokrzyskie voivodeship that results from the strong influence of metropolitan centres and heightening the phenomenon of draining local resources away, including highly-skilled employees. Graduates of Świętokrzyskie secondary schools take university courses outside the region and do not return after completing them. In turn, those who decide to study at a university in Świętokrzyskie then seek employment away from this voivodeship. A negative effect of this process is visible in the gradual erosion of human capital from the voivodeship, which significantly reduces its competitive strength in comparison to the whole country (Szydlik-Leszczyńska, 2017, pp. 112–114).

Statistics corroborate the relatively low number of workplaces in the region available for people with higher education. At the end of 2017, 17.7% (Poland: 8.5%) of all the employed in the Świętokrzyskie voivodeship were farmers, gardeners, foresters and fishermen; 17.2% (Poland: 15.1%) were industrial workers and craftsmen, 13.1% (Poland: 19.9%) were specialists, and 12.9% (Poland: 13.3%) were workers in the service sector and salespeople *(Aktywność ekonomiczna ludności w województwie świętokrzyskim…*, 2018; *Aktywność ekonomiczna ludności Polski…*, 2018). According to *Barometr zawodów 2019,* in the Świętokrzyskie voivodeship those professions that require tertiary education and which are in oversupply in the labour market include economists, teachers, philosophers, historians, political scientists, cultural experts and public administration specialists (*Barometr zawodów 2019*, 2018, p. 13, pp. 15–16). On the other hand, in high demand are such professions as doctors and nurses. Apart from that, there are

noticeable shortages of people who do simple jobs, skilled workers and craftsmen as well as workers in the service sector (e.g. hairdressers) and salespeople.

In the Świętokrzyskie voivodeship, steps were taken in order to educate and train doctors. Consequently, the Faculty of Medicine was opened, which was a crucial move taking into account the existing shortages in the region's labour market. Doctors and nurses are the only professions in short supply in the Świętokrzyskie voivodeship that require a university or college degree. Given the period of time necessary to complete medical studies, people practising this profession will shortly enter the labour market and gradually ease the shortages in this respect. On the other hand, there is an excessive number of graduates of social studies and humanities, as well as students who took a degree in education and business and administration. In 2017, in the Świętokrzyskie voivodeship, the largest groups of university graduates constituted students who completed studies in: business and administration (15.4%), medicine (13.9%), pedagogy (12.9%), engineering and technology (11.8%), social studies (10.8%) and architecture and construction (10.2%) (www.stat.gov.pl/BDL). They included five professions which were considered to be in surplus in the region (economists, teachers, political scientists, cultural experts and public administration specialists). Currently one can observe pedagogical faculties adapting their courses, which results in a drop in the number of graduates of these faculties. In addition, the remaining courses with surplus graduates saw lower enrolments, which yet has to be registered among graduates. The aforementioned migrations of young people have their negative consequences, namely a shrinkage in regional human capital, but at the same time, from an individual's perspective, it is a rational move. Bańka points out that "mobility is a fundamental factor of modern career capital and one's lifelong development. It is a prerequisite for an individual's responsibility for one's own personal and professional life" (Bańka, 2007, p. 48). Then, according to Super, one can speak of a professional career only when one aims to develop it (Lelińska, 2016, p. 32). The Swiętokrzyskie voivodeship can now see a slow, albeit steady, decrease in the number of university graduates against the figures for Poland, which, in the short run, may overcome the difficulties in finding and changing the jobs that university graduates may encounter. In the long run, however, this downward trend might pose a threat to a process of expanding the knowledge-based economy (Szydlik-Leszczyńska, 2019, pp. 233–234).

Conclusion

Apart from a few leading urban centres with the qualities of a metropolis (metropolitan area), there exist vast areas with low potential for development, such as the Świętokrzyskie voivodeship, where employment growth in knowledge workers is unnoticeable. This results from the dominance of rural areas, low levels

of urbanisation and the fact that a wide area of the Świętokrzyskie voivodeship (as much as two-thirds) is under nature conservation. These conditions have a negative impact on the situation in the labour market and the opportunities for the professional development of young people with higher education, which results in an outflow of human capital, particularly young people, from the region. Among some of the most important objective determinants of an employee's career development, along with the level of education or the acquired profession, are regional conditions, such as the economic fabric of the region, salary/wage levels, labour market situation, unemployment rate and employment structure. In this regard, a crucial role is played by the authorities of the voivodeship, who need to increase their efforts in order to attract investment mainly based on modern technologies which create the demand for employees with higher education, as well as being connected with the development of entrepreneurship in the region, including the promotion of local economic operators and their products among the inhabitants of the voivodeship. In turn, an important task facing the institutions of higher education appears to be the development of the students' abilities in terms of creative thinking and innovative and entrepreneurial attitudes which foster the creation and development of economic operators whose work is based on the utilisation of knowledge resources and who are capable of creating them, not limiting themselves only to knowledge transfer in this scope. For this reason, there should be an increase in the use of individualisation in the educational processes, aimed at problem solving and teamwork. It is also essential to shape attitudes promoting adaptability and professional mobility, including proactive attitudes connected with planning one's own professional career. It also appears necessary to increase the cooperation of institutions of higher education with the regional authorities and entities responsible for stimulating the policy of regional development in order to create more employment opportunities and more favourable conditions to facilitate career development for young people with higher education.

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Summary

Changes taking place in the contemporary world have stimulated a faster development of knowledge and have led to the need for businesses to adjust to them, including in their expectations towards their employees. Employees and young people have entered a higher level on a larger scale, which has consequently resulted in an influx of a large number of people with higher education into the labour market.

The aim of this study is to present the regional conditioning of professional careers and the perspectives for their development based on the case of young people with higher education in the Świętokrzyskie voivodeship. The term professional career has been presented, as well as its stages, the situation of young people, including those with higher education, and factors limiting its development in the region. A professional career is a crucial element in the lives of contemporary humans. It determines their status and, thanks to it, they can develop and fulfil their ambitions. However, the development of a career is hindered in smaller and less developed communities, where there is a shortage of workplaces for people with higher education. It forces young people to migrate to large cities of a metropolitan character, where there are better possibilities of development and higher earnings. This results in a deficit of valuable human capital and in the deepening of the hard demographic and economic situation in the problem region. The article is of a cognitive character, with its research methods being literature studies and statistical data analysis. In order to achieve full comparability, the following study is based on the data available until the end of 2017 because there is some shortage of data for the Świętokrzyskie voivodeship in the following years.

Keywords: professional career, perspectives of development, problem region.

Uwarunkowania rozwoju kariery zawodowej osób młodych z wyższym wykształceniem w perspektywie regionalnej

Streszczenie

Zmiany zachodzące we współczesnym świecie spowodowały szybszy rozwój wiedzy i wymusiły dostosowania przedsiębiorstw do tych zmian, w tym związane z wymaganiami wobec pracowników. Pracownicy i młodzi ludzie na dużą skalę zaczęli kształcić się na poziomie wyższym, co w konsekwencji doprowadziło do napływu dużej liczby osób z wyższym wykształceniem na rynek pracy.

Celem opracowania jest zaprezentowanie uwarunkowań regionalnych kariery zawodowej i perspektyw jej rozwoju na przykładzie osób młodych z wyższym wykształceniem w województwie świętokrzyskim. Przedstawiono pojęcie kariery zawodowej, jej etapy, sytuację osób młodych, w tym z wyższym wykształceniem oraz czynniki ograniczające jej rozwój w regionie. Kariera zawodowa jest istotnym elementem życia współczesnego człowieka. Stanowi o jego statusie, dzięki niej może się rozwijać i realizować własne ambicje. Rozwój kariery jest jednak utrudniony w mniejszych i słabiej rozwiniętych ośrodkach, gdzie istnieje niedobór miejsc pracy dla osób z wyższym

wykształceniem. Powoduje to, że osoby młode migrują do dużych ośrodków o charakterze metropolitalnym, gdzie są większe możliwości rozwoju i zarobkowania. Skutkuje to ubytkiem wartościowego kapitału ludzkiego i pogłębianiem trudnej sytuacji demograficznej i gospodarczej w regionie problemowym. Artykuł ma charakter poznawczy, jako metody zastosowano studia literaturowe i analizy danych statystycznych. W celu uzyskania pełnej porównywalności opracowanie opiera się na danych dostępnych na koniec 2017 roku, ponieważ występują pewne braki danych dla województwa świętokrzyskiego za lata kolejne.

Słowa kluczowe: kariera zawodowa, perspektywy rozwoju, region problemowy.

JEL: H75, I25, J18, J24.

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Demography of small and medium enterprises
in Belarus

> *People, products, markets, and even societies have their own life cycles – birth, growth, maturity, old age, and death. At each stage of the life cycle, a typical pattern of behavior arises.*
>
> I. Adizes (Adizes, 2014)

INTRODUCTION

Finding ways to develop entrepreneurship can lead to the creation of new ways of doing business, which depend on the prevailing social and cultural norms in society, and their influence on the formation of enterprises. In studying the problem of increasing the level of employment, creating new jobs and adapting to changing market conditions, special attention should be paid to the issues of business demography which studies the creation and development of an enterprise.

The object of the study is a statistical study of the demography of enterprises in the small and medium-sized enterprise (SME) sector. It includes a study of the dynamics of the development of small businesses and the characteristics of indicators related to the demography of organisations.

The main goal of the study is to analyse the dynamics and regional characteristics of the demography indicators of organisations and to identify their impact on employment as an important factor in economic growth and as competitiveness indicators of the economy.

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Theoretical and methodological approaches to research

The study of business demography is an insufficiently developed research direction in economics, and therefore this problem is rather sparingly presented in statistical studies. One of the reasons for its incomplete development is that the concepts underlying the definition of business demographics were formed heterogeneously in most countries, which complicates cross-country comparisons, except for the EU countries (*Business Registers…,* 2010; Eurostat-OECD…, 2007; *Business demography – Eurostat…*, http).

Business demography is one of the main priorities in an economic growth strategy because in the development of entrepreneurship, the "birth rate" and "survival rate" of enterprises are becoming important factors in increasing employment worldwide, as well as here in Belarus.

Extensive studies related to the study of business demography are devoted to the life cycle of organisations as a set of stages of development that a business goes through during its existence (emergence and liquidation, renewal, merger and separation, the selection of various forms of subsidiaries, etc.). Many researchers have reflected on this in their works: Yitzhak Adizes (2014); Larry E. Greiner (1972); Penrose E.T. (1959) and others.

There are many approaches to studying the process of organisational development. The classical view considers such an organisation as a money-making machine. However, this approach is too narrow, especially in the context of the problem of business demography.

Another direction is more appropriate, which involves treating the organisation as a living organism. This makes it possible to apply to the demography of organisations the methods of analysis that are characteristic of demographic statistics used in studies of the natural movements of populations (i.e., the population of living beings). This is reflected in the works of Ari de Gius (2004), Christopher Meyer and Stan Davis (2007), etc. This approach allows the contradictions to be smoothed out between the short-term economic goals of a business, aimed at obtaining maximum results from minimum costs, and the long-term goals, aimed at longevity and the development of their own potential over a long period.

In this study, the most interesting is the analysis of the dynamic development of entrepreneurial entities, based on indicators of business demography. The study includes assumptions about the causes and consequences of changes in employment and changes in business demographics. In this regard, the influence of the factor of the birth rate of organisations on the average employment of the population was studied as a factor of influence on the labour market.

To achieve the goals set in the study, a number of general scientific methods were used: synthesis, analysis, deduction, systems approach, analysis of the structure of the population, study of the series of dynamics, analysis of the influence of factors on the result using the index method, and correlation-regression analysis.

The regression equation was checked for statistical significance using the Fisher test which shows whether the coefficients of the regression equation are significant. The autocorrelation of the residuals was checked using the Durbin-Watson test. As autocorrelation was not found, the quality of the model could be considered satisfactory.

All calculations were carried out in a Microsoft Excel spreadsheet and the STATISTICA program.

Contribution of the SME sector to the economy of Belarus

According to Belstat's methodology, business demography is a branch of statistics the object of which is to analyse the demographic processes that affect legal entities that are commercial organisations. Thus, the objects of business demography in the Republic of Belarus include such objects of entrepreneurial activity as microorganisations, small organisations, and medium-sized organisations (*Methodology…*, 2019; *Support of small and medium enterprises…*, 2010; *State program…*, http).

The study of the dynamics and contributions of the small and medium-sized enterprise sector for the period 2015-2018 demonstrated a growth trend in the number of micro-, small and medium-sized organisations, mainly due to microorganisations. The number of small and medium-sized organisations fluctuated downward. As a result, in the SME sector the share of microenterprises increased over the 2015–2019 period from 86.27% to 87.37%, the share of small enterprises decreased from 11.5% to 10.6%, and the share of medium-sized enterprises changed insignificantly (*Small and medium…,* 2020).

The average number of employees in the SME sector increased by 5%, from 1,237,900 people in 2015 to 1,192,900 people in 2019, but did not reach the 2013 level (96.4%). At the same time, the number of individual entrepreneurs in 2013–2019 increased by 3.4%, from 248,550 to 257,000. In 2013–2019, the average number of SME employees per organisation increased from 32.5 to 35 people, including: microorganisations – 3.5 people; small organisations – 38 people; and medium organisations – 164 people. Thus, each organisation in 87.4% of the SME sector provided jobs to an average of 3.5 people, while 10.6% (small enterprises) provided jobs to 38 people.

The growth in the number of people employed in the field of individual entrepreneurship over the 2013–2019 period was 3.4%, from 248,550 to 257,000 people, both in the country as a whole and in the regions. The number of individuals attracted by individual entrepreneurs increased by 72%, from 40,700 to 69,900 people. In 2019, the number of self-employed people engaged in craft activities increased significantly, by 17.8%, or 6,500. The number of individual entrepreneurs per 1,000 people employed in the economy amounted to 59.3 units

(in accordance with the State program for the development of small and medium-sized enterprises in the Republic of Belarus, the plan was exceeded by 4.9 units (*State program of support…,* http).

The economy of Belarus is characterised by an uneven distribution of SMEs across the country: more than half of small and medium-sized businesses and almost half of individual entrepreneurs are located in the capital and the Minsk region. At the same time, each of the remaining five oblasts accounted for up to 10% of the SMEs and 8–15% of individual entrepreneurs.

The study of the contribution of small and medium-sized businesses to the macroeconomic indicators (Table 1) showed that their contribution to the GDP for 2013–2019 exceeded a quarter of the total level and increased to 26.1%, while the share in GVA increased from 28.6% to 30%, not reaching the planned program level of 34.9% (*Small and medium…,* 2020).

Table 1. Contribution of SMEs to the main macroeconomic indicators of Belarus, %

Contribution of the SME sector to macroeconomic indicators	Years			
	2013	2015	2017	2019
GDP	25.1	23.4	24.6	26.1
Gross Value Added	28.6	27.0	28.4	30.0
Average number of employees in organisations; number of individual entrepreneurs and hired persons attracted by them	32.5	31.9	33.5	35.0
Sales of products, goods, works, services	39.3	39.6	42.8	43.2
Industrial production	15.6	15.7	17.8	18.4
Retail trade turnover of trade organisations	36.1	31.7	35.5	33.1
Public catering turnover	37.5	42.2	45.6	48.1
Wholesale turnover of wholesale trade organisations	81.6	83.2	83.8	81.7

Source: own development based on (*Small and medium…*, 2020).

At the same time, in terms of the average number of employees for organisations and individual entrepreneurs, the share of SMEs increased from 32.5% to 35%. This indicates a lower level of GVA per employee of small businesses. However, the share of these enterprises in the sales of products increased from 39.3% to 43.2% (almost the planned level – 43.3%), which indicates a higher level of sales per worker in the SME sector, compared to the economy as a whole.

The contribution of SMEs to the wholesale turnover of wholesale trade organisations was significant and amounted to more than 80% of the indicator for the economy. The contribution to retail turnover of trade organizations reached one third of the turnover at the macro level. The share of SMEs in the turnover of public catering was close to a half (48.1%) of this value in the economy. The growth of the indicator was in line with similar trends in the global economy. The contribution of SMEs to the volume of industrial production, despite its growth, has so far reached 18.4%. A number of positive changes are taking place in the

development of the small and medium-sized business sector in Belarus, including at the legislative level. These are aimed at developing the sector, improving its sectoral and territorial structure, simplifying the procedure for registering and liquidating business entities, replacing planned checks with selective ones, eliminating administrative barriers, etc. It is necessary to further develop the sphere of small and medium-sized businesses as one of the factors in increasing employment and economic growth in the country.

The modern economy has acquired the additional definition of "coronary crisis", which is its susceptibility to the consequences of the impact of COVID-19 on the life of society in all its manifestations.

The most competitive, innovative and open-minded organisations survive in a crisis. The "entrepreneurship quality effect" works. More efficient, profitable enterprises remain functioning in the market, while less efficient, unprofitable ones cease to function during the crisis. This frees up market niches to allow start-ups, with new business models and new business approaches, to enter the market.

In Belarus, as elsewhere in the world, the SME sector has been hit hardest by the economic impact of the pandemic. Small and medium-sized businesses in Belarus, according to the BEROC study (Khusaenov, 2020), have experienced significant difficulties, including: decreased demand in the domestic and foreign markets, growth in accounts receivable, instability of the national currency, logistical problems, etc.

In this regard, the SME sector needs to provide an enabling environment for operations, including support in access to finance, information and markets, for the sector to continue to play an important role in creating productive jobs, alleviating poverty and developing the economy.

Dynamics of demographic events in SMEs in Belarus and the EU

In the modern world, which is characterised by rapidly changing circumstances in the economic situation, business demography becomes one of the most important indicators of socio-economic development for any economic territory. In recent years, the statistical services of many countries have increased their statistical analyses in this direction (*Business Registers…,* 2010; *Eurostat-OECD Manual…*, 2007).

Business demographic statistics include activity, birth, survival, death and growth rates. This information forms an important characteristic of entrepreneurial activity. The activity of an enterprise is determined by the number of employees and/or turnover (in the form of sales of products, goods, works, services) exceeding zero (*Business demography in the…*, 2019).

Over the 2010 to 2018 period, the number of active enterprises in Belarus increased by 35% (Table 1). The yearly average growth was about 3.8%. For

comparison, according to the latest data from Eurostat (*Business demography – Eurostat…,* http), the number of new enterprises in the EU increased by 3.5% between 2015 and 2016. Thus, the average rates in Belarus are comparable to those in Europe. However, the upward trend in Belarus has slowed somewhat, with the growth of 1.74% over the past year (2020–2021).

The dynamics noted in Belarus shows significant regional differences: the highest growth rate of active enterprises was observed in the region of the capital and the city of Minsk, while the growth of the indicator in other regions is much lower than the national average. This is due to the fact that the concentration of active enterprises in the capital region is much higher than in other areas. Their share over the 9 years increased from 53% to 57.6%, with 39.2% of active organisations concentrated in Minsk in 2018, and 18.4% in the region. This direction of business development is due to the fact that the capital has a developed infrastructure, significant production capacities and qualified personnel.

The number of active enterprises-employers, i.e., enterprises that have at least one employee, increased by 29% over the analysed period (from 73,501 to 94,750), but their share in the number of active enterprises decreased from 93.7 to 89.5% (Table 2).

Table 2. Dynamics of demographic indicators of enterprises in Belarus (year end), %

Years	Number of active businesses	Birth rate of enterprises	Birth rate of employer enterprises	Rate of economic "births" of enterprises	Enterprise death rate	Death rate of employers	Rate of economic "death" of enterprises	Survival rate of enterprises born in 2013
2010	78 461	…	…	…	8.6	11.5	11.4	…
2011	81 901	…	…	…	8.7	9.5	10.5	…
2012	86 585	14.1	13.3	12.0	7.4	7.7	9.0	…
2013	95 051	16.9	16.5	14.9	6.2	6.4	9.3	…
2014	104 718	14.1	19.4	17.2	8.3	9.3	12.5	90.7
2015	104 141	8.5	9.3	10.8	8.4	9.0	13.3	80.7
2016	104 330	8.8	9.4	9.4	7.9	9.3	10.4	72.3
2017	103 994	8.4	7.1	9.8	6.9	…	…	65.2
2018	105 822	8.7	8.9	11.1	…	…	…	59.2

Source: own work based on (*Business demography in the…*, 2019; *Statistical Yearbook…*, 2019).

The number of economically active enterprises that have at least two employees increased by only 8.7% (from 62,610 to 68,071). Their share in the number of active enterprises decreased by 15.5 percentage points (from 79.8% to

64.3%), and their share in the number of active enterprises-employers decreased by 13.4 percentage points (85.2 to 71.8%).

According to Eurostat (*Business demography – Eurostat…*, http), 4 million jobs and 2.6 million new businesses were created in the EU in 2016. Thus, the average number of employees was 1.54 people per new enterprise. Similar indicators are observed in Belarus: over the past 7 years, the average number of employees per enterprise "born" was 1.9 people with a downward trend to 1.43 people in 2018 (*Business demography – Eurostat…*, http).

A study was carried out in 2018 of the structure of active Belarusian organisations by considering the type of economic activity. The largest share in the total number of active enterprises, at 35.1%, was for wholesale and retail trade, car and motorcycle repair; industry in second place at 14.5%; transport activities, warehousing, postal and courier activities at 10.4%, construction at 7.6%; professional, scientific and technical activities at 5.4%; agriculture, forestry and fisheries at 4.4%, information and communications at 3.6%, etc. *(Business demography in the…,* 2019).

In examining the structure of the population of enterprises according to EU-2016 data, it can be seen that three quarters (75.9%) of all enterprises operating in the economy were in the service sector. They provided jobs for about two thirds of the total employed. The service sector accounted for 64.5% of all businesses in the Czech Republic and 85.6% in Luxembourg. Among the countries with the smallest share of organisations in the service sector were Slovakia, Slovenia, Poland, and Lithuania, while with the largest share were Greece, Portugal and Bulgaria (*Business demography – Eurostat…*, http).

The birth of entrepreneurial structures is one of the important factors in creating new jobs and economic growth. The emergence of new organisations stimulates the growth of the competitiveness of the economy, stimulates an increase in efficiency in the direction of competition, promotes the development of innovations of various types (technological, product, organisational), all of which generally leads to the development of high-technology industries and an increase in labour productivity.

The statistical indicators of the "births" of enterprises include: the number of births of enterprises and the birth rate of enterprises. The birth of an enterprise means the appearance, in the studied year, of a number of employees and/or turnover exceeding zero. This process does not include the creation of an enterprise as a result of reorganisation, or the resumption of the activity of a dormant enterprise within two years. The birth rate is the proportion of enterprises born in the total number of active enterprises. At the same time, they share: birth of an employer enterprise with one or more employees as well as the economic birthrate of an enterprise with two or more employees, or the achievement by these organisations of the established threshold value or number (*Methodology…,* 2019).

The birth rate of Belarusian enterprises during the analysed period decreased from 14.1% in 2012 to 8.8% in 2016 and 8.7% in 2018 (Table 2), with the indicator stable at this level for the last 4 years. In the regional context, the highest level in the country during the entire period was observed in the capital, where it also decreased over seven years from 15.4% to 11.3%. In other regions, approximately the same indicator level was observed in the range 6.1% to 7.4% in 2018. The birth rate of Belarusian enterprises-employers for 2012–2018 decreased in Belarus from 13.3% to 8.9%. The rate of economic births of enterprises also decreased over this period, from 12% to 11.1% (*Business demography in the…*, 2019).

In comparing the birth rate of enterprises in Belarus and European countries, the Belarusian indicator (8.8% in 2016) was slightly lower than the average European level (for 28 EU member states in 2016 it was 9.8%), although it exceeded the birth rate in a number of countries: Greece, Belgium, Austria, Germany, Finland, Sweden, Italy, the Czech Republic, etc. The highest birth rates were noted in such post-Soviet states as Lithuania (18.8%) and Latvia (16.2%), as well as in Portugal (15.6%), Great Britain (15%) and Poland (12.5%) (*Business demography – Eurostat…,* http).

The "death" of an enterprise means a decrease in the number of employees and turnover in the next year to zero. Furthermore, enterprises that have ceased to be active in the following year are checked for their activity for two years, since they may have been "sleeping", so that if they resumed activities during this period then their death in the current year is not taken into account. The death of an enterprise is not considered the termination of its activities as a result of a takeover, division or merger (*Methodology…,* 2019).

The death rate of enterprises, i.e. the percentage of the number of deaths of organisations to the number of active enterprises in Belarus in 2010–2017 decreased from 8.6% to 6.9%, and a uniform decrease in death was observed in all regions of the country, including the capital.

The death rate of Belarusian enterprises-employers between 2010 and 2016 decreased in Belarus from 11.5% to 9.3%. The rate of economic deaths of enterprises decreased in the 2010–2016 period from 11.4% to 10.4% (Table 2).

When studying the birth rate of Belarusian organisations by type of activity, it can be seen that in 2018 the largest share of births of enterprises, at 36.1%, fell for wholesale and retail trade, repair of cars and motorcycles; industry was in second place at 13.1%; transport activities, warehousing, postal and courier activities at 7.6%, construction at 6.5%; professional, scientific and technical activities at 5.8% (*Business demography in the…,* 2019).

Analysis of the death of Belarusian organisations by type of activity showed a similar picture: the largest share of deaths of enterprises (44.7%) fell for wholesale and retail trade, car and motorcycle repairs; second place was occupied by industry at 11.7%; construction at 10.7%; transport activities, warehousing, postal and courier activities at 7.7%; professional, and scientific and technical activities at 5.1%.

It can be assumed that the natural increase rate in the number of enterprises can be calculated by analogy with the indicators of demography of the population as the difference between the levels of fertility and mortality. In Belarus, there was a positive increase in the number of organisations in the study period. However, there was a gradual decrease in the natural growth rate from 6.7% in 2012 to 1.5% in 2017. A study of this indicator was carried out in the regions of the republic. The highest natural growth rate of organisations in 2017 was noted in Minsk (3.1%), a positive growth was observed in the Brest and Vitebsk regions, while in other regions it was negative or zero.

The value of the natural increase rate in the number of organisations in Belarus differed by type of economic activity: the highest level was noted in the supply of electricity, gas, steam, hot water and conditioned air at 11.3%; water supply at 10.4%; education at 8.3%; in organisations related to creativity, sports, entertainment and recreation at 8%; information and communications at 6.7%; mining industry at 4.8%; agriculture, forestry and fisheries at 3%; manufacturing industry at only 0.9%; while some spheres recorded a negative growth, such as construction with a decline of 3.6% and transport activities, warehousing with a decline of 1% (*Business demography in the…*, 2019).

The life cycle process of newborn organisations and their ability to survive for five years after their establishment was investigated in a study of enterprise survival. In this case, the level of "survival" of enterprises is understood as the percentage ratio of the number of "born" and "survivors" in all subsequent years of enterprises to the number of "born" enterprises. A "survivor" is an enterprise that is active in the year of birth and subsequent years (*Methodology…*, 2019; *Business demography in the…*, 2019).

According to Eurostat (*Business demography – Eurostat…*, http), the average annual survival rate of enterprises born in 2011 across the 28 EU member states was about 81%. The highest annual survival rate was recorded in Sweden (96.7%), while rates above 90% were recorded in the Netherlands, Belgium and Greece. Most countries, including Poland, had an indicator level exceeding 80%. The lowest level was registered in Lithuania (63.4%). Indicator levels with longer survival times decline gradually. In 2016, a similar trend was observed, when the share of surviving organisations (at over 60%) was noted in only two countries – Belgium and Sweden. In most countries, however, less than half of businesses survived a five-year period. In Poland, the five-year survival rate was below 40%, while the highest probability of not surviving to the age of five was noted in Portugal (less than 30%).

The annual survival rate for Belarusian enterprises born in 2013 was quite high and amounted to 90.7% (Table 2). The annual survival rate of enterprises in subsequent years decreased slightly and ranged from 82.3% in 2014 to 86.4% in 2017. Moreover, the lowest value of the indicator in Belarus was noted in Minsk, which may have been associated with organisations which include a large

share of "fly-by-night enterprises". The three-year survival period for Belarusian enterprises born in 2013 was 73.2%, and the five-year period was 59.2%. The capital had the highest share of non-viable enterprises in the country.

A study of enterprises in the EU member states was carried out according to the criterion of "rapid growth". The category of fast-growing enterprises included enterprises with a threshold annual growth of 10% or more. In 2016, the share of such enterprises was 10.7% of all operating enterprises with at least ten employees in the EU-28 business economy. There were significant differences in the distribution of fast-growing enterprises in the EU: their share ranged from 16% in Ireland to 2.5% and 2.6% in Cyprus and Romania respectively. The share of such organisations in Poland was about 12% (*Business demography – Eurostat…*, 2020).

Fast growing businesses also operated in all sectors of the economy in the EU. However, their share in the service sector was higher in most member countries: the share of the information and communications sector was 16.5%; activities in administrative and support services at 14.8%; transportation and storage at 13%; and professional, scientific and technical activities at 12%.

In the course of the study, it was suggested that there might be a causal relationship between the increase in employment and the change in business demographics. In this regard, the influence of the factor of the birth rate of organisations on the average employed population for the period was studied.

During the correlation and regression analysis, an equation was constructed to characterise the relationship between the size of the employed population and the birth rate of Belarusian enterprises for 2010–2018:

$$Y_t = 4165{,}18 + 0{,}02749X + u_t,$$

where:

Y_t – is the number of the employed population;

X – is the "birth" rate of enterprises;

u_t – remainders.

Based on this equation, we can conclude that with an increase in the birth rate of enterprises by 1%, the size of the employed population increases on average by 2.75%. The coefficient of determination, at 58.3%, suggests that the variation in the effective indicator (the number of the employed population) is 58.3% explained by the variation in the birth rate of organisations, and depends in 41.7% on factors not taken into account. The correlation coefficient, at 76.4%, indicates a close relationship between employment and birth rates.

Thus, we can state that there exists a relationship and an interdependence between the indicators of business demography and the indicators of the labour market in Belarus.

Conclusions

Business demography is one of the main priorities of an economic growth strategy, as entrepreneurship development, "fertility" and "survival" of enterprises are becoming important factors in increasing employment throughout the world as well as in EU countries and Belarus.

The level of the regional indicators of demography of enterprises in Belarus, increasing the efficiency of their functioning, largely depends on such factors as the availability of labour, the level of employment and the incomes of the population, the availability of developed infrastructure to support entrepreneurship, a favorable geographical location, etc. The analysis showed that the SME sector has a fairly high potential for further development. To unleash this potential, it is necessary to form appropriate organisational, legal and economic conditions in order to increase the adaptability and competitiveness of the domestic economy to achieve the country's SDGs.

The paper analyses the dynamics and regional characteristics of indicators of business demography, and their impact on the factors of growth and increasing the entrepreneurial potential of the population.

Using correlation and regression analysis, a strong influence of the factor of births of organisations was found on the average number of the employed population. The study suggested a causal relationship between changes in business demographics and labour market indicators as factors of economic growth and job creation in the country.

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Summary

Business demography is an important information basis for making strategic decisions in the business area. This allows institutional bodies to optimally adjust their policies regarding the development of entrepreneurship nationally in such areas as regional development, employment, unemployment, education, sources of financing for small and medium-sized businesses, innovation policy, simplification of bureaucratic procedures, etc.

Business demographic indicators characterise the dynamics of economic development through the adaptation of economic structures to changing market conditions. In addition, they assess the potential contribution that new start-ups can make to the important employment problem through job creation. At the same time, the organisation is primarily seen as a community of people, and capital optimisation is presented as an addition to the optimisation of people.

In the study, in addition to analysing the classic indicators of business demography such as the activity population of enterprises, "birth", "survival" (up to five years after birth), "death", etc., a new indicator was proposed for implementation: the natural increase rate in the number of organisations in Belarus calculated both for the economy and for the types of economic activity.

The study will help to develop recommendations for developing measures in the field of entrepreneurship development using a regression model that identifies the relationship between changes in business demographics and employment. A set of measures to support entrepreneurship are becoming an integral part of national economic policy, a powerful factor in increasing the level of "survival" of enterprises and increasing the share of "fast-growing" organisations. This contributes to the achievement of sustainable development goals.

Stimulating development and support for small business, with the ability to quickly respond to changes in market conditions, will help provide the "coronavirus" economy with the necessary flexibility, an especially important factor in the context of COVID-19.

Keywords: business demography, active population of enterprises, birth; death; survival.

Demografia małych i średnich przedsiębiorstw na Białorusi

Streszczenie

Demografia biznesu to ważna podstawa informacyjna do podejmowania strategicznych decyzji biznesowych. Pozwala organom instytucjonalnym na optymalne dostosowanie polityki w zakresie rozwoju przedsiębiorczości w gospodarce narodowej w takich obszarach jak rozwój regionalny, zatrudnienie, bezrobocie, edukacja, źródła finansowania małych i średnich przedsiębiorstw, polityka innowacyjna, uproszczenie procedur biurokratycznych, itp.

Wskaźniki demografii przedsiębiorstw, odzwierciedlając dostosowywanie struktur gospodarczych do zmieniających się warunków rynkowych, charakteryzują dynamikę rozwoju gospodarczego. Ponadto pozwalają ocenić możliwy wkład, jaki mogą wnieść nowo utworzone przedsiębiorstwa w rozwiązanie problemu bezrobocia poprzez tworzenie nowych miejsc pracy. Jednocześnie organizacja jest postrzegana przede wszystkim jako wspólnota ludzi, a optymalizacja kapitału jest prezentowana jako element uzupełniający do optymalizacji zatrudnienia.

W opracowaniu oprócz analizy klasycznych wskaźników demografii biznesu, takich jak aktywność przedsiębiorstw, „narodziny", „śmierć", „przetrwanie", zaproponowano nowy wskaźnik: naturalny wzrost liczby organizacji na Białorusi, liczony zarówno ogółem, jak i według rodzaju działalności gospodarczej. Wykorzystano model regresji, który ujawnił zależność między zmianami demografii biznesu a zatrudnieniem.

Badanie pozwala na wypracowanie rekomendacji dla działań w zakresie rozwoju przedsiębiorczości. Zestaw działań wspierających przedsiębiorczość staje się integralną częścią polityki gospodarczej kraju, ważnym czynnikiem zwiększającym poziom „przetrwania" przedsiębiorstw i zwiększającym udział organizacji „szybko rozwijających się". Przyczynia się to do osiągnięcia celów zrównoważonego rozwoju. Stymulowanie rozwoju i wspieranie małego biznesu, który potrafi szybko reagować na zmiany warunków rynkowych, pomoże zapewnić gospodarce „koronawirusowej" niezbędną elastyczność, co jest szczególnie ważne w kontekście COVID-19.

Słowa kluczowe: demografia biznesu, aktywność przedsiębiorstw, narodziny, śmierć, przetrwanie.

JEL: M13, M21, M29, L26.

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Ordering of innovation projects by multi-criteria decision-making methods – a comparison

INTRODUCTION

Social and economic inequalities exist objectively. In the case of the integration process, economic and social differences between economic units represent a barrier. There are reasonable and active efforts of many administrative bodies to transfer existing inequalities to equalities. That is why the European Union also pays special attention to economic and social cohesion in its regional policy. Due to the changing conditions, the principles of this policy have been continuously innovated for individual periods. For the years 2014 to 2020, four principles have been identified for cohesion policy: concentration (resources, efforts, and expenditure), programming, partnership, and complementarity (European Commission, 2014).

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Using innovative projects to support step-by step development in a certain area of industry, region or society can be seen as a practical step to the principles mentioned above. Preparation of calls for the projects is an inevitable step to the process as well as the next technical step related to selection of the most suitable projects. As a result, a decision maker (DM) can obtain an order of the projects according to their quality.

Different approaches and methods are used for decision making in these cases. From a wide range of possible methods, it is necessary to choose suitable ones. Even in this case, a condition may occur in which several suitable methods are available. It is therefore necessary to determine whether the results of using these methods are similar or different. It is while adhering to the first principle that the use of multi-criteria decision-making (MCDM) methods can be beneficial.

It is illusory to assume that it is possible to evaluate the similarity and difference of the results of all decision-making methods. M. Kumru and P. Y. Kumru (2014) admit that different methods may yield different results for the same problem. The choice of which method/model is the most appropriate depends on the problem at hand and may be to some extent dependent on which model the DM is the most comfortable with. The most frequently used by them are TOPSIS, ELECTRE, PROMETHEE, MACBETH, and AHP.

In this paper, we focus only on MCDM methods, specifically on these ordering methods: Analytical Hierarchy Process (AHP), Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS), and Weighted Linear Combination (WLC). The goal of the paper is evaluation of a similarity and difference of the results on a basic set of innovative projects.

Methods of multi-criteria analysis

To evaluate and select innovative projects (IP) with different criteria, several authors recommend the use of MCDM. E.g., A. Neves and R. Camanho (2015) focused in their study on the application of the AHP method in solving the problem of prioritising investment opportunities in IT projects. The conclusion of their study is a positive evaluation of the AHP method and recommendations for the addition of several criteria or use of other MCDM methods and their comparison.

A. Cubukcu (2018) argues that the most difficult part of evaluating investment opportunities and IP is the phase of selecting the best alternative/s for IP by evaluating these projects. This study offers a multi-criteria approach. The author states that a given approach is chosen for the reason that this approach excludes mainly alternatives that have lower scores related to the dominant or most important acceptance criteria. The author uses the TOPSIS and WLC methods and recommends the use of these methods in decision-making based on several criteria.

C. Macharis and A. Bernardini (2015) focus their research on the use of multi-criteria analysis to evaluate innovative projects in the automotive industry. The aim of their study is to point out the increasing use of decision analysis methods in the evaluation and selection of projects. The authors point out the suitability of the methods and give an overview as well as the way of their use.

In recent decades, several criteria have been proposed to evaluate the success of a project. As in the evaluation of innovation processes, there is no uniform methodology for evaluation of IPs. This is because the criteria for the success of an IP may differ between different types of projects and depending on their objectives.

All evaluated methods of multi-criteria analysis provide the possibility to determine the score of each evaluated object according to the selected criteria. For evaluation, it is necessary for the selected criteria to be the same for all evaluated methods. Each of the evaluated methods in the article contains the same basic steps: criteria selection, setting of weights (suitable for the selected method), and results (scores + order).

The procedure for selecting appropriate object evaluation criteria is determined by the evaluator (i.e. DM), and criteria can be selected according to qualitative (individual, political) or quantitative procedures (e.g. using correlations). In the case of regional disparities, regions can have their own common criteria concerning the level of development, and they can be set by political decisions.

Again, subjectively (e.g., the ranking method) or objectively (e.g. Saaty's method), weights obtained can be used to determine the weights of the selected criteria. For practicality and simplicity, the ranking method for the WLC and TOPSIS methods is used in our evaluation. When using it, the DM ranks the criteria from the most important to the less important. In the case of the AHP method, Saaty's matrix is used as T. Saaty (1980) himself is the creator of the AHP method. The method is based on compiling Saaty's matrix of pairwise comparisons. Within it, the DM determines which of the two criteria being compared is more important, and determines the degree of preference.

Using the evaluated methods, we obtain certain scores of objects according to the selected criteria. The evaluated objects with their obtained scores can be sorted and thus create the order of fulfilment of the several criteria selected (multi-criteria analysis).

Parallel evaluation of the investigated methods using real data is rare. It is possible to find their sequential use (e.g. AHP → WLC by J. Blachowski (2015); A. El Jazouli *et al.* (2019)) in creating order as a basis for decision making. Sequential use of the AHP, TOPSIS and WLC methods is provided by e.g. Al Garni and A. Awasthi (2018).

E.A. Santana (1996) has conducted a comparative study on the AHP, ELECTRE, and TOPSIS methods and considered that AHP is more robust than the other two. TOPSIS was considered the simpler of the studied methods. S.H. Zanakis *et*

al. (1996) performed comparisons on AHP, ELECTRE, TOPSIS and two more methods, using simulated data. The results obtained by the AHP and TOPSIS methods showed some similarity. However, the results from TOPSIS and ELEC-TRE presented significant divergence. J. Zak (2005) in his study based on the opinions of DMs and stakeholders who applied the methods draws, relevant to this paper, conclusions that (i) the methods have a universal character and can be applied with satisfactory computational efficiency to multi-objective ranking problems; (ii) the AHP method is the most reliable and MCDM is the most user friendly; and (iii) the AHP method can be applied for decision problems with a smaller as well as larger number of variants.

It is possible to find many descriptions with formulas of different MCDM methods. We can mention D. Anderson *et al.* (2016), J. Blachowski (2015) or G. Beroggi (1999).

Procedure of the AHP method

The importance of the criteria is expressed by pairwise quantitative comparison. The magnitude of the preferences of the *i*-th criterion over the *j*-th one is arranged in Saaty's matrix *S*, where its elements s_{ij} represent estimates of the proportion of the weights of the criteria. The weights of the criteria are then the geometric means of the rows normalised to a scale of 0 to 1. Their calculation as well as another procedure and formulas for the AHP method are given by the authors mentioned above.

Procedure of the TOPSIS method

It was originally created by Hwang and Yoon (1981). The importance of criteria is expressed by assigning the weight of individual criteria, in our case using the ranking method. The number of points is then converted to standard weights and the positive-ideal and negative-ideal solutions are calculated. Subsequently, ranked are distances of each alternative to these solutions, and the relative closeness to the ideal solution. Their calculation as well as another procedure and formulas for the TOPSIS method are given by the authors mentioned above.

Procedure of the WLC method

The WLC method is a variant of the Ordered Weighted Averaging (OWA) method, sometimes sorted as a hybrid between qualitative and quantitative

methods. The importance of the criteria is expressed by assigning the weight of the individual criteria, in our case using the ranking method. The number of points is then converted to standard weights and the standard value of the object is gradually expressed. Their calculation as well as another procedure for the WLC method are given by the authors mentioned above.

Methodology

The similarity and difference of the results of the examined methods is evaluated in the paper on a basic sample of 789 innovative projects submitted by companies requesting non-repayable funds (NFP) from the Ministry of Economy of the Slovak Republic (MH SR), and projects which received funds. Data about fund receivers obtained from MH SR, annual reports of individual companies, the Finstat database, and the Central Project Register serve as a basis for criteria selection to evaluate the success of projects and companies. Financial data (e.g. changes in sales) are used at constant prices. This data serves as a basic set of analyses.

Correlation analysis was applied to the selected criteria and thus interdependent criteria were excluded. After excluding the dependent criteria, an analysis of companies and their innovative projects was performed, and their order was determined according to the examined methods. Correlation analysis was also used to compare the results (order) obtained by the AHP, TOPSIS and WLC methods. R and MS-Excel were used for data processing.

Results of the comparison

To assess the substitutability of the investigated methods, the following criteria were available:
1. The given amount contracted from NFP.
2. The amount of NFP spent.
3. Changes in sales after and before the end of the project.
4. The actual number of employees in the company at the year of projects starting.
5. Project duration in months.

The results of cross-correlation of criteria are shown in Table 1. The correlations found a high dependence between the given and spent funds (i.e. what was allocated was also spent) and therefore only 4 criteria were used in the next comparison.

Table 1. Results of cross-correlation of criteria

Correlation index	Financial resources (€)		Change of incomes	Number of employees	Length of project (months)
	given	spent			
Financial resources given (€)	1	0.9987	0.2216	0.2623	0.3962
Financial resources spent (€)		1	0.2226	0.2624	0.3944
Change of incomes			1	0.3170	0.1856
Number of employees				1	0.1227
Length of project (months)					1

Source: authors.

Application of the AHP method

The importance of the criteria in the AHP method is expressed by pairwise quantitative comparison and arranged in Saaty's matrix S, where its elements s_{ij} represent estimates of the proportion of the weights of the criteria, i.e. how many times one criterion is more significant than the other.

The elements of the square matrix on the other side of the diagonal are the inverse values of the elements on the initial side. In the given example (Table 2), if the amount of spent funds as compared to the number of employees in the company in the first line is assigned a value of 7, then, the value will be 1/7 or 0.14 on the opposite side of the matrix diagonal. The weights of the criteria are then the geometric means of the rows. Geometric means are normalised to a scale of 0–1 (w_j).

Table 2. Saaty's matrix and criterion weights

	Financial resources spent (€)	Change of incomes	Number of employees	Length of project (months)	Geometric mean	w_j
Financial resources spent (€)	1.00	0.20	7.00	5.00	1.627	0.245
Change of incomes	5.00	1.00	9.00	7.00	4.213	0.633
Number of employees	0.14	0.11	1.00	0.33	0.270	0.041
Length of project (months)	0.20	0.14	3.00	1.00	0.541	0.081

Source: authors.

For each project, the normalised value is then calculated, taking into account the logical assumption that the project costs should be as low as possible and therefore the cost criterion has the opposite value (high costs have low values and vice versa). Subsequently, the sum of coefficients and scores of each project is calculated. The calculated score determines the order/position of the company/project.

Application of the TOPSIS method

The importance of individual criteria is determined by the ranking method. A value from 1 to 4 is assigned to each criterion; a higher value means higher importance. Subsequently, the standard weights are determined as follows:

1. Amount of spent NFP = 0.30.
2. Change in sales after and before the end of the project = 0.40.
3. The number of employees in the company as of the project start period/year = 0.10.
4. Project duration in months = 0.20.

In the next step, the normalised value of each project is calculated, considering the logical assumption that the project costs should be as low as possible, and therefore the cost criterion has the opposite value (high costs have low values and vice versa). Subsequently, matrix Z is calculated and the positive-ideal and negative-ideal variant for each criterion is found. The ideal variant is the one with the highest normalised value of the criterion, the negative variant is the one with the lowest normalised value of the criterion.

Subsequently, the distance of each project from both variants and the relative distance of each alternative to these solutions are calculated. In the last step, the total score is calculated. The calculated score determines the order/position of the company/project.

Application of the WLC method

The importance of the individual criteria is determined by the ranking method. A value from 1 to 4 is assigned to each criterion; a higher value means higher importance. Subsequently, the standard weights are determined as follows:

1. The amount of spent NFP = 0.30.
2. Change in sales after and before the end of the project = 0.40.
3. The number of employees in the company as of the project start period / year = 0.10.
4. Project duration in months = 0.20.

In the next step, the normalised value of each project is calculated, taking into account the logical assumption that the project costs should be as low as possible and therefore the cost criterion has the opposite value (high costs have low values and vice versa). Subsequently, the total performance value is determined. The calculation is based on standardised project weights and standardised weights of individual criteria. The calculated score determines the order/position of the company/project.

RESULTS OF THE COMPARISONS

By applying the MCDM methods (AHP, TOPSIS, WLC), we autonomously calculated the order of companies/projects according to suitability based on the specified criteria in each of the methods. The next step was to compare the orders obtained. The aim of the comparison was to determine the degree of matching between the results. The comparison was performed using the Spearman's rank correlation coefficient (or Spearman's ρt) with results represented on the Table 3.

Table 3. Correlations among the ranks

Correlation coefficient	WLC	AHP	TOPSIS
WLC	1.000	0.886	0.285
AHP		1.000	0.378
TOPSIS			1.000

Source: authors.

From the results of the Spearman's rank correlation coefficient, we can see that the WLC and AHP methods produce similar results. The TOPSIS method has more varied results. We can assume that the results depend on the individual methods, because the correlation coefficient showed that:
– the results of the WLC method and the TOPSIS method have $r = 0.285$, which indicates a very low or no correlation respectively,
– $r = 0.378$ between the results of the AHP and TOPSIS methods, which also indicates a weak dependence,
– strong dependence, or a high correlation respectively, is found between the results of the AHP and WLC methods only, where $r = 0.886$.

CONCLUSIONS

Three widely used quantitative methods of multi-criteria analysis – AHP, TOPSIS and WLC – are compared. The created order of objects from the basic set of less than 800 objects is compared. The file used is large enough to generalise the results obtained.

We expected that there would be some variations in the order of the ordered objects, but these would not be significant; and the correlation test between them would show a strong dependence. The Spearman's rank correlation coefficient was used for mutual comparison. However, the test results showed that the investigated methods do not provide results with a close dependence, which means that the order of objects created depends on the method used. The results show that it is

not appropriate to generalise the results obtained by S.H. Zanakis *et al.* (1998) on the AHP and TOPSIS methods and their similarity. Strong dependence was shown only between the AHP and WLC methods in the presented case. This means that the choice of method for determining the order of objects cannot be selected randomly but requires a more detailed analysis and setting of more precise criteria.

As has been mentioned, the number of criteria is open to the DM; so, it is possible to have criteria which describe development of an area. The areas then can be ordered by the MCDM methods, too.

According to the choice of an MCDM method we can see one more issue related to social disparities: transparency of IP ordering because of public funds. As has been mentioned above, the ordering depends on the method chosen by a DM. Thus, it is inevitable in the time of making calls for the projects to announce not only the criteria for ordering, but also the method used for ordering. It can avoid suspicions of manipulation during the ordering process.

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Summary

In the case of the integration process, economic and social differences between economic units represent a barrier. There are reasonable and active efforts of many administrative bodies to transfer the existing inequalities to equalities. In practical life, it is often necessary to order different objects and take a decision based on it. Decision-making can be intuitive or, conversely, based on various quantitative methods. The paper discusses some quantitative methods of multi-criteria decision-making (MCDM), namely Analytical Hierarchy Process (AHP), Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS), and Weighted Linear Combination (WLC); and their use for innovation projects. Autonomous orders of objects (projects) are performed on the same basic data set by the above-mentioned methods, and they are compared with each other. The Spearman's rank correlation coefficient was used for mutual comparison. The test results showed that the investigated methods do not provide results with a close dependence, which means that the order of objects (projects) created depends on the method used.

Keywords: multi-criteria analysis, AHP, TOPSIS, WLC, correlation.

Uporządkowanie projektów innowacyjnych przez wielokryterialne metody podejmowania decyzji – porównanie

Streszczenie

W przypadku procesu integracji barierą są różnice ekonomiczne i społeczne pomiędzy jednostkami gospodarczymi. Wiele organów administracyjnych podejmuje rozsądne i aktywne wysiłki, aby ograniczyć istniejące nierówności. W praktyce często trzeba uporządkować różne kwestie i argumenty i na tej podstawie podjąć decyzję. Podejmowanie decyzji może być intuicyjne lub odwrotnie, oparte na różnych metodach ilościowych. W artykule omówiono metody ilościowe podejmowania decyzji wielokryterialnych (MCDM), a mianowicie: *Analitical Hierarchy Process* (AHP), *Technique for Preference by Clarity to Ideal Solution* (TOPSIS) oraz *Weighted Linear Combination*

(WLC) i ich wykorzystanie w projektach innowacyjnych. Autonomiczne oceny obiektów (projektów) wykonywane są na tym samym podstawowym zbiorze danych wspomnianymi metodami i są ze sobą porównywane. Do wzajemnych porównań wykorzystano współczynnik korelacji Spearmana. Wyniki testów wykazały, że badane metody nie dają wyników o ścisłej zależności, co oznacza, że kolejność tworzonych obiektów (projektów) zależy od zastosowanej metody.

Słowa kluczowe: analiza wielokryterialna, AHP, TOPSIS, WLC, korelacja.

JEL: C00, O43.

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Organisation of running events – reducing exclusions and improving the quality of life

Introduction

Despite the development of civilisation and democratisation of social life, various social situations, statements or political decisions quite often display a lack of friendliness towards differences in society. Researchers also note progressive social dissection (Petridis, 2015), although this problem is very often pointed at as one of the key goals of concern for political elites. Among the myriad of other urgent and important issues, the above are often touched upon by researchers (e.g. Czkór, 2014).

This article discusses the topic of running as an activity, with it being an important factor allowing for the elimination of marginalisation. It also explores running as improving one's quality of life, and the very diverse aspects that accompany it (Hitchings, Latham, 2017). Participation in a running event, such as a 10 km event, half marathon (21.1 km), or marathon (42.2 km), is the culmination of sports involvement. It is the implementation of plans for many amateur runners. The professionalism of this type of event has a wider dimension because it concerns runners, their families and the local community. The appealing qualities of long distance runs, as well as participants' fulfilment sometimes projects changes, or fixation of the changes to the lifestyle of amateur runners. Over the last few years, the number of mass long distance running events organised in Poland has increased significantly. In 2010 there were nearly 800 running events registered in Poland, but there were 2500 events by 2017. The twelve largest half marathons in Poland in 2018 were completed by a total of 76,593 runners, which was an increase of almost 60% compared to 2014. However, it is worth pointing out that the running

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map of Poland is represented not only by marathons and half marathons, but also by hundreds of smaller running events (www.maratonypolskie.pl).

The research hypothesis is set out as follows: factors relating to safety, comfort and satisfaction of participants play an important role in the organisation of running events. The author designed and performed the research with a view to verify this hypothesis.

One of the necessary key elements for ensuring the objectives of sporting events is risk management. In this study, an analysis of literature was carried out at the preparatory stage, which covered the social aspects of running activities and risk management in the field of project management (running).

The perceived research gap concerns the lack of a professional approach to estimating the risk of organising running events in Poland, and even more so with regard to the aspects of the elimination of exclusions. Attractive mass running events culminate in an improvement in the quality of life and the activities of very different amateur runners centred on the common theme.

The aim of the research was to estimate the risks in organising running events in Poland. In this respect, relevant studies have been designed and carried out, whereby identifying risk factors and risk estimation. Moreover, inference has been drawn with respect to the hypothesis and discussion.

The social aspect

Sport has always been an essential part of humanity. It is a common phenomenon which relates to all spheres of human life. Moreover, it has been researched within natural sciences, social sciences, anatomy, physiology, as well as economics and sociology (Czechowski, 2014).

The educational role of sport in human life was noticed as early as the ancient times. Sport was believed to shape personality, motivate self-improvement, overcome weaknesses, as well as to allow for social integration. On the other hand, at the beginning of 1970's, Americans started to consider physical activity a preventive factor for many diseases, including those related to the psychological aspect of human health (Galloway, 2002). The role of sport in the 21st century is gaining in importance and popularity. This trend goes beyond its passive aspect as it more and more frequently takes the form of a systematic activity within specific disciplines. It increasingly involves regular participation in individual and group training, which, in consequence, leads to participation in competitions on the local, national or even worldwide scale (Czechowski, 2014; Czkór, 2014). Furthermore, sport has ceased to be associated with the domain of young people due to their biological, psychological and spiritual needs. The growing popularity of sport also stems from its impact on mood, as it brings satisfaction, allows for

overcoming our own limitations, as well as boosts energy and self-confidence, which affects other spheres of our lives (Ławniczak, 2016).

Sport may be perceived from different points of view. These can include it being a form of entertainment, an educational tool, a form of therapeutic provision, something that improves our health condition, and a facilitator of ethics, in particular ethical principles and requirements. In reference to its main characteristics, i.e. rivalry and aiming at constant development of one's own capabilities, sport relates to the essence of human existence and frequently amounts to its significant part (Czechowski, 2014; Niedbalski, 2015).

The 20th and 21st centuries are undoubtedly a period of intense development of amateur (recreational) sport, whose main aim is to maintain an appropriate level of fitness, mental health and emotional balance (Niedbalski, 2015; Hitchings, Latham, 2017). It is also hard to disagree with Kaźmierczak (2013), who considers sport a factor which supports socialisation through the elimination of stigma related to disabilities and other social exclusions.

The World Bank estimates that approximately 650 million people, i.e. 10% of the world's population, suffer from different kinds of developmental disorders, have work limitations, or have been identified with varying degrees of disability. In the lives of these people, sport plays a special role, as it helps to boost self-esteem and is second to none in the context of overcoming social barriers. People subjected to social exclusion, the disabled and those suffering from other dysfunctions, very often become role models for the rest of society. Not only does their participation in competitions bring health and sociological benefits for the athletes themselves, but it also has an educational and motivational impact on supporters. Co-participation in training and competitions with people with disabilities of varying degrees teaches humility and empathy. It is also emphasised that disabled participants compete fairly, which stems from group solidarity and higher social sensitivity to the needs and expectations of other people. Therefore, it is important that organisers open their events to people who are not fully abled, by creating conditions allowing for equal opportunities (Niedbalski, 2015; Stempień, 2017).

The sociological aspect of physical activity refers not only to the disabled but also to sex-related stereotypes and social exclusions. Researchers in the social context of female sport frequently stress the fact that women, who decide to focus their lives on physical activity, experience the conflict of stereotypical roles, as the role of an athlete does not correspond to the traditional vision of femininity (Mikołaczyk, 1998). Women's participation in sport is frequently limited. This exclusion originated in the ancient times, when due to strict rules, women were not only eliminated from participation in the Olympic Games but also had no right to enter the stadium under the threat of death. The gradual growth of women's activity in sport has been triggered by the modern

era and its sudden changes, which have given women the right to take part in production and other forms of public life. Consequently, the changes have initiated the ongoing evolution of everyday life and the progressing unification of life aspirations and goals of both sexes (Ławniczak, 2016). Nowadays, women undertake various physical activities and often achieve effects similar to their male counterparts.

However, I would like to emphasise that sport is a cure for loneliness, social exclusion, depression, self-acceptance and self-confidence issues. One of the sports disciplines which contributes to socialisation in particular is running. The increasing popularity of this form of activity is facilitated by the ease with which people can do it. This is clearly an advantage over other disciplines – one can train almost anywhere, irrespective of the time of day or year, and without being financially overburdened. The number of sports clubs and running events confirms this thesis. Running competitions become an element of many families' – as well as that of social groups – everyday life, whereby becoming a form of spending free time. It also encourages the making of friends and developing relations, which are strengthened within the personal sphere. Interest in running itself brings people closer to each other and allows for relations beyond sports arenas. In light of competition, when fighting one's own weaknesses and body limitations, the social status, education, age or sex have no importance. There are many stimuli to participation in sports events, especially street and cross-country running events. For some people the main motivation is entertainment, relaxation, or simply getting away from everyday life. For others – making new friends, integration with other runners, or overcoming one's own mental and physical weaknesses play a key role. There are also people who act like sports tourists – the event is then only additional to the planned package of tourist services. Finally, others collect medals, trophies, event T-shirts and race bibs from given events. Therefore, we can observe a significant growth of organised events for jogging lovers on the running market (Dzięgiel, Lubowiecki-Vikuk, 2013; Stempień, 2017).

Each year, mass street runs attract more and more sports lovers and the number of available and innovative running events is still growing. Moreover, the organisers of sports events (apart from the main run itself), prepare multiple other attractions – the so-called accompanying events. These include Nordic walking, roller-skate competitions, runs for both children and the disabled, concerts and festivals. The accompanying events let a broader audience participate in the event, encourage health-improving behaviour, and most importantly, increase the event's competitiveness (Hitchings, Latham, 2017). It should be noted that sports events build prestige and create a positive image of a given place, and amount to an opportunity to present positive changes in a city. However, all events, including sports competitions, are related to multiple risks, especially in the context of the diversity of the group participating. Hence, it is important

to properly plan such an event so that it is safe for participants and provides a feeling of satisfaction and comfort (Lubowiecki-Vikuk, Basińska-Zych, 2011; Piekarz, Jenkins, Mills, 2015).

Participation in an organised run is most often the culmination of a period of a long preparation. The various goals of the participants as well as of the organisers have been cited above. A badly-organised sporting event may not result in achieving these goals. Sometimes it only spoils the day of the event, whereas occasionally it can even lead to tragedies such as injuries or even fatalities. Quite often, there is also opposition from the local community to access restrictions to the site of the event (Shipway, Holloway, Jones, 2013).

Risk management as support for organising running events

The organisation of long-distance runs calls for professional preparation within the scope of planning and realisation with the use of specific conceptions or at least their elements (Łuczak, Miśniakiewicz, 2011).

The analysis of relevant professional literature does not indicate a specific profile of key definitions related to projects and project management. A project is a one-time task of defined duration, assigned necessary resources and the determined goal of realisation. On the other hand, project management is defined as an activity which requires knowledge, skills, instruments and techniques in order to realise the determined goals and meet the requirements of a given project (Ammon, Brown, 2007). In the case of sports events organisation, professional project management should consist of planning the sports event, and managing and evaluating it, whereby learning from experience.

Albrecht (2014) takes notice of the fact that sports events organised for amateurs cause specific threats that include poor stamina preparation of participants and the relevant risks associated with this. The researcher emphasises the conception of sports event logistics as a leading element of project management, which is based on risk assessment. Albrecht also indicates that the safety of both participants and supporters must be the priority of sports event organisers. Furthermore, the organisers must be ready for unforeseen situations linked with accommodation, transportation, and handling the competition. Miller, Wendt and Young (2010) consider proper risk management a key element of preparing running event projects. They also find it the basis for achieving goals and assuring participant safety. However, it is not enough to assess the risk or even take mitigation measures for unacceptable risks. It is necessary to develop and implement a comprehensive plan of actions, which indicates the acceptance of all risk factors and readiness for emergencies.

The term *risk* stems from the Latin word *riscore,* which means 'dare', and suggests that it should be perceived as a conscious choice and not a necessity (Boo, Gu, 2010). The ISO 31000 standard defines risk as the effect of uncertainty in pursuing a set goal, and risk management as a coordinated set of activities and methods that is used to direct an organisation and to control the many risks that can affect its ability to achieve objectives (ISO 31000, 2018). Consequently, risk management includes defining the context, risk assessment (including risk identification, risk analysis and risk evaluation) and risk treatment. Risk estimation is necessary for taking mitigation measures (ISO 31000, 2018) and risk management itself is pro-active, as its goal is to control unforeseen events (Hanstad, 2012).

Risk management of large-scale sports events should be researched from different perspectives, but the organisers should be responsible for risk identification and management (Moyle et al., 2014). In relevant professional literature, the problem of sports event organisation in the context of risk estimation has rarely been analysed. Most papers touching upon risk management in sport focus on participant safety and crowd control, traumas and injuries, sport infrastructure management, terrorism, damage and complaints arising during sports events, aggression and hooliganism (Leopkey, Parent, 2009a; 2009b; Linton, Valentin, 2018; Toohey, Taylor, 2008; Reid, Ritchie, 2011).

However, we may observe a gap with reference to mass (running) events organised for amateur athletes. According to my own research, as many as 51% of sports event organisers in Poland do not carry out formal project management in compliance with a renowned methodology. Moreover, 78% of them estimate risk informally, which practically comes down to intuitive avoidance of threats and the fulfilment of the existing legal requirements. Therefore, it is likely that decisions related to organising an event are not optimal, as significant risk is not identified and, consequently, it has not been properly mitigated (Hanstad, 2012). Such a situation may lead to obtaining smaller profits (than expected), halting or interrupting the event (Reid, Ritchie, 2011), which can cause damage to the organiser's reputation and participant dissatisfaction. Moreover, risk management seems to be crucial if participation in a sports event does not require running experience or proof of good health in those who take part.

The desire to fill the gap in research has become my main intention, as my research aims at the identification and assessment of risk factors, which directly affect safety and the satisfaction level of amateur running event participants.

Research methodology

The research consisted of two basic stages. The first one (preparatory research) was conducted within a group of ten experts in organising sports

events – long-distance runs, experienced participants and researchers within the scope of sport and project management – with the use of the Delphi method. It consisted in identifying a list of risk factors, which were subsequently grouped in a logical way.

At the second stage (proper research), the risk factors were assessed on a scale ranging from 1 to 4 according to their importance (results) and likelihood of occurrence. 27 representatives of running event organisers in Poland (marathons and half marathons), who were responsible for organising seven out of ten largest running events in Poland (with 44,587 participants in 2018) took part in the research. All of the selected running events in Poland were held on flat or moderate terrain and belonged to the category of *street runs*, which allowed for obtaining similar characteristics in the context of climate conditions, participant profile, the declared standard of organisation, including legal requirements.

Table 1. Characteristics of the preparatory and proper research

Characteristics	Preparatory research	Proper research
Research method, performed analyses	Delphi method	Risk estimation
Research tool	Research Survey	Questionnaire
Size of sample	10 experts	27 representatives of the largest running events (21K, 42K) in Poland
Time of research realisation	2017	2018
Purpose of the research	Identification and grouping of risk factors for the organisation of running events. Preparation of the proper research	Risk estimation and analysis related to the organisation of running events – assessment of risk factors, primarily of a social nature
IT tools, form of research realisation	E-mail communication, meetings in person	E-risk app

Source: own research.

The study used the e-risk tool, which significantly facilitated the conduct of the research and data analysis.

Results

The preparatory research allowed for the defining of a list of 75 risk factors classified in the following groups: Safety (1), Budget and finance (2), Information (3), Comfort and satisfaction of participants (4), Organisation (5), Start package (6), Recovery and energy support (7), Reputation (8), Environment and force majeure (9) (Table 2).

Table 2. Groups and risk factors – results of the preparatory research

Group 1. Safety	Group 2. Budget and finance
– Serious accident on the route – Intrusion of a third party onto the running route – Participant of insufficient health – Collision between people, people and objects, people and cars etc. on the running route – Terrorist attack – Food contamination – intentional pollution of food/beverages available along the route/ in the finish zone – Insufficient medical support	– Insufficient income from participant fees – Insufficient funding from sponsors – Insolvency – Lack of profit at the planned level – Time overlapping with another rival event – Large participation fee
Group 3. Information	**Group 4. Comfort and satisfaction of participants**
– Obsolete news on the website Lack of/insufficient contact with potential participant – Insufficient promotion/information on external websites – Unintended disclosure of personal data – Personal data theft – Cyber attack – modification, blocking of the website – Lack of a clear, interactive map of the route – Lack of early information about the result	– Lack of free accommodation – Poor organisation of the deposit office – Difficulty in reaching the start of the marathon – Lack of parking space near the start – Inability to receive start packages on the day of competition – Mass start (not in waves) – Inappropriately narrow route, narrows – Lack of/unclear information about the covered distance – Unattractive route – Unattractive expo, a poorly-located expo – Lack of access to showers after competition
Group 5. Organisation	
– Inappropriate running route identification – Insufficient access to toilets – Unattractive catering at the finish – Impossibility of gathering spectators in the start and finish zones – Inappropriate organisation of the run – jams after the start – Inappropriate organisation of the finish – Lack of the appropriate atmosphere during the event – Problems related to organisation, time of the event etc. with the local community and the administration – Delayed start – Smaller than usual number of nutrition points – Inappropriate organisation of nutrition points – Insufficient number of volunteers – Lack of volunteer engagement – Faulty time measurement – Lack of established procedures – Limited human resources – Incompatibility of the running route capacity with the number of participants	

Group 6. Start package and medal	Group 7. Recovery and energy support
– Unattractive start package – Unattractive design of the medal – Insufficient number of medals – Insufficient number of start packages	– Lack of access to massage in the finish zone – Lack of appropriate hydration of participants – Insufficient amount of water at recovery points – Insufficient number isotonic drinks at recovery points – Insufficient number of energy gels, fruit etc. at recovery points – Random choice of nutritional products at recovery points and the finish – Low health quality of the offered nutritional and recovery products – Lack of nutritional awareness of participants – Lack of nutritionist support – Lack of/insufficient number of cooling points along the route
Group 8. Reputation	**Group 9. Environment and force majeure**
– Unfavourable media information on a national scale – Unfavourable media information on a local scale – Lack of information about the event in the national media – Lack of information about the event in the local media – An insufficient number of participants – Rival local event	– Downpour – Strong wind – Excessively low temperature – Excessively high temperature – Difficult conditions of the running route – Traffic in the direct vicinity of the event – Force majeure

Source: own research.

Experts emphasised the importance of factors related to the physical safety of participants and to the organisation of the events. They also stressed risks linked with accidents on the route, bad health condition of the participants, as well as terrorist and bioterrorist threats. The research participants took notice of the importance of personal data protection (GDPR) and cyber safety. We should also pay attention to the large number of factors classified in the groups entitled *Recovery and energy support* and *Comfort and satisfaction of participants*, which are very likely to affect the participant satisfaction level. The aspects have also been analysed by Niedbalski (2015), but only to a limited extent – considering the disabled. Niedbalski's viewpoint can be accepted as a universal approach to the problem.

On the basis of the risk estimation results, five groups of factors were identified with the use of a scree plot – the most significant (11), less significant (16), neutral, of little significance, and insignificant.

Among the most significant factors (Table 3) respondents indicated, amongst others, factors related to financing the event, organisational and safety issues referring to terrorist and cyber safety threats, as well as health of the participants. The group of the most significant factors also included the risk of time overlapping with a rival sports event. Other authors have also found the aspects of physical safety highly important – both traditionally understood (securing the route, escape routes, emergency corridors) (Leopkey, Parent, 2009a) and those typical of modern times, such as terrorism (Moyle, Kennelly, Lamont, 2014).

Table 3. 'The most significant' risk factors

Code	Risk factor	Average	Standard deviation
2.2.	Insufficient funding from sponsors	6.27	2.50
5.16.	Limited human resources	6.03	1.56
5.8.	Problems related to organisation, time of the event etc. with the local community and the administration	6.01	2.35
9.7.	Force majeure	5.95	1.96
2.5.	Time overlapping with another rival event	5.93	0.92
3.4.	Unintended disclosure of personal data	5.78	2.39
5.14	Faulty time measurement	5.76	2.55
2.1.	Insufficient income from participant fees	5.74	1.86
5.9.	Delayed start	5.26	1.00
5.17.	Incompatibility of the running route capacity with the number of participants	5.17	1.69
2.3.	Insolvency	5.10	2.69

Source: own research.

It seems to be obvious that factors related to finances and the technical organisation of the event amount to very important elements from the point of view of organisers, who, like any other entrepreneur, aim at maximising their own profit. However, it should be emphasised that factors affecting comfort and participant satisfaction were also assessed as significant. They mostly refer to the route of the run and actions realised during the run, whereas the accompanying actions were considered less important. The latter include the organisation of the start, additional bonuses in the form of massage, a meal after the competition, the contents and quality of start packages and medals (Table 4).

Table 4. 'Less important' risk factors

Code	Risk factor	Average	Standard deviation
6.1.	Unattractive start package	4.94	1.54
8.1.	Unfavourable media information on the national scale	4.87	1.74
4.4.	Inability to receive start packages on the day of competition	4.76	1.99
5.13.	Lack of volunteer engagement	4.68	0.99
5.5.	Inappropriate organisation of the run – jams after the start	4.68	1.05
3.5.	Personal data theft	4.60	1.39
8.5.	Insufficient number of participants (too little interest)	4.54	1.79
4.7.	Inappropriately narrow route, narrows	4.52	1.57
5.1.	Inappropriate running route identification	4.44	1.74
5.12.	Insufficient number of volunteers	4.42	1.45
1.1	Serious accident on the route	4.31	1.14
7.3.	Insufficient amount of water at recovery points	4.31	1.72
1.2	Intrusion of a third party onto the running route	4.26	1.21
4.2.	Poor organisation of the deposit office	4.17	0.92
8.6.	Rival local event	4.17	2.36
1.5.	Terrorist attack (an explosion, shooting, ramming)	4.16	1.89
1.7.	Insufficient medical support	4.15	1.55
7.4.	Insufficient number isotonic drinks at recovery points	3.53	1.03

Source: own research.

The conducted research may amount to advice for all running event organisers regardless of the event's importance and size. It was proved that organisers, while taking care of their own interests, should pay attention to the location of competition, the route, an appropriate selection of the personnel, as well as assuring proper medical support and recovery points on the route. These factors become even more important in the case of disabled or not fully abled participants. It seems that if the organiser minimises the risk affecting participant comfort and safety to an *insignificant* or *acceptable* level, they have a chance to gain the trust of participants and enhance their image. In consequence, such actions should have an impact on reducing the budget-related risk.

Conclusions

In this paper, the author has taken up the topic of amateur sports activity (running) in the context of factors conducive to the elimination of marginalisation, and at the same time associated with increasing the quality of the lives of those who

participate. The importance of the running activity for the integration of individuals has been demonstrated in the context of various forms of marginalisation. The implementation of a training plan and participation in running events has a social dimension. A high level of management is necessary for achieving the objectives set by marathon and half marathon organisers. The research hypothesis was established and both the objectives and research have been designed and realised. Moreover, risk factors have been identified.

The research discussed in the present paper shows the importance of risk analysis at the stage of planning competitions. Defining critical points allows for the prevention of critical situations, adjusting specific elements to participant needs, as well as increasing the safety level and participants' satisfaction. The discussion over the results of other studies confirms a massive interest in running, basically only in its positive dimension, i.e. as a phenomenon, which strengthens the socialisation of amateur athletes. At the same time, the discussion also indicates the underappreciation and non-application of methodical risk estimation in the organisation of running events in Poland. Relying heavily only on intuition in this regard can reduce the safety and appeal of such events and, more broadly, sport itself as a form of human activity. Consequently, the abovementioned has a significant impact on permanent struggle for eliminating exclusions and increasing the quality of life.

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Summary

Physical activity is a basic factor of human development – it brings satisfaction, vitality, energy, has a therapeutic dimension and affects the quality of life. Among the large group of amateur athletes, there are people vulnerable to social exclusions related to disabilities, psychological dysfunctions, sex and social status. For these people sport is a cure for loneliness and lack of self-confidence, as well as it positively affects their motivation to overcome barriers, which is reflected in other spheres of their lives. One sport that in particular integrates different social groups is running, as confirmed by the growing number of amateur runners, training activities dedicated to them and running events organised for them. However, it is important that organisers of such events ensure the safety of participants and take care of their satisfaction and comfort by holistic planning of all organisational activities. The study hypothesised that factors concerning the safety, comfort and satisfaction of participants play a vital role in organising running events. The aim of the article was to identify and assess the risk of organising running competitions for amateurs in the context of ensuring safety and satisfaction for all participants of the event. In particular, the author noted the risk factors of a social nature, conducive to integration, associated with countering exclusions. The paper presents test results for national competitions involving 21 and 42 km runs. The identification of risk factors was performed by 10 experts (the Delphi method) and 27 representatives of 7 running events organised in Poland (2017–2018) (risk estimate, a questionnaire) took part in the risk estimation. Risk estimation was carried out on the basis of average (effect and probability). The results of the study provide unequivocal information about the spheres of organising sporting events which in the highest degree can affect the safety and comfort of their participants and the perception of the competition itself. Among the key risks there were: inadequate financial and organisational resources, route capacity, or technical problems. Moreover, the paper includes an attempt to discuss results of other research.

Keywords: quality of life, fight against exclusions, running activity, risk management in sport, social aspects of sport.

**Organizacja imprez biegowych
– niwelowanie wykluczeń oraz podnoszenie jakości życia**

Streszczenie

Aktywność fizyczna jest podstawowym czynnikiem rozwoju człowieka – dostarcza satysfakcji, witalności, energii, ma wymiar terapeutyczny i oddziałuje na jakość życia. Liczną grupę spor-

towców amatorów tworzą osoby narażone na wykluczenia społeczne wynikające z niepełnospraw-ności, dysfunkcji psychicznych, płci, statusu społecznego czy innych przyczyn. Sport dla tych osób stanowi antidotum na samotność, brak pewności siebie oraz czynnik motywacyjny do pokonywania kolejnych barier, co przekłada się na inne sfery życia. Jednym ze sportów, który w szczególności integruje różne grupy społeczne, jest bieganie, czego potwierdzeniem jest rosnąca liczba biegaczy amatorów, zajęć treningowych im dedykowanych i organizowanych dla nich imprez biegowych. Ważne jest jednak, aby organizatorzy takich imprez zapewnili bezpieczeństwo uczestników oraz dbali o ich satysfakcję i komfort poprzez holistyczne planowanie wszystkich działań organizacyj-nych. W pracy postawiono hipotezę badawczą, że czynniki dotyczące bezpieczeństwa oraz komfor-tu i satysfakcji uczestników odgrywają istotną rolę w organizacji imprez biegowych. Celem artyku-łu była identyfikacja i ocena ryzyka organizacji zawodów biegowych dla amatorów w kontekście zapewnienia bezpieczeństwa i satysfakcji wszystkim interesariuszom wydarzenia. W szczególności autor zwraca uwagę na czynniki ryzyka o charakterze społecznym, sprzyjające integracji, związa-ne z przeciwdziałaniem wykluczeniom. W artykule zaprezentowano wyniki badań dla krajowych zawodów obejmujących biegi na dystansie 21 i 42 km. Identyfikację czynników ryzyka wykonało 10 ekspertów (metoda delficka), a w szacowaniu ryzyka wzięło udział 27 przedstawicieli 7 imprez biegowych organizowanych w Polsce (2017–2018) (szacownie ryzyka, kwestionariusz). Szaco-wanie ryzyka dokonane zostało na podstawie średniej (skutku i prawdopodobieństwa). Rezulta-ty badania dostarczają jednoznacznych informacji o sferach organizacji imprez sportowych, które w najwyższym stopniu mogą rzutować na bezpieczeństwo i komfort ich uczestników oraz percepcję zawodów. Pośród kluczowych ryzyk znalazły się m.in. niedostateczne zasoby finansowe oraz orga-nizacyjne, przepustowość trasy, problemy techniczne. Podjęto także dyskusję z wynikami innych badaczy, prowadzących badania w zakresie organizacji imprez sportowych i zarządzania ryzykiem.

Słowa kluczowe: jakość życia, walka z wykluczeniami, aktywność biegowa, zarządzanie ryzy-kiem w sporcie, społeczne aspekty sportu.

JEL: Z29, L20.

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Knowledge-based economy: wealth owners portfolio choices and financialisation. A wealth supply analysis[2]

INTRODUCTION

The present article is aimed at providing a theoretical explanation of how relevant phenomena characterising knowledge-based economy can be logically interpreted based on both the evolution of macroeconomic theory and management science. As a starting point, it is possible to emphasise that the present, knowledge-based economy phase of development can be considered a period characterised by low profitability of investment in physical capital and tangible assets (Cf. Valente, 2020a). Based on Keynesian models in which variously conceived acceleration mechanisms are at work, a fall in profitability of investments in physical capital and tangible assets can be logically expected to derive from an increase in income inequalities and a reduction in the physical capital accumulation rate and GDP growth rate, as observed in main market economies since the 1980s.

Based on those conclusions, the present work analyses financialisation, focusing in particular on the fact that, unlike typically assumed in mainstream and heterodox economic theory, physical capital is not the only asset in which wealth owners can lock their fortune. The arguments presented here allow the confirmation of the hypothesis that when assets other than physical capital[3] are available,

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[3] As well as other assets connected with production needs and used as productive factors as for example human capital, broadly defined knowledge, innovation, etc.

they can also form fruitful means of preserving wealth and purchasing power by wealth owners. When, as nowadays, increases in income inequalities and stagnation of economic growth occur in an economic system, the realisation of investments in physical capital and other assets more directly connected with production needs and used as productive factors can be expected to become less profitable. The profitability of assets not connected with production needs, on the other hand, can be expected to rise in either absolute or relative terms.

The primary aim of this work is then twofold. The first aim is to indicate that a relevant phenomenon of portfolio choice change can be considered to be at work on the capital – or rather wealth – supply side. The second one relates to the effects of such empirical evidence on the functioning of macroeconomic models based on economic theory. This argues that when assets other than innovation and physical and human capital exist, it is not reasonable to assume that some automatic forces stabilising the economic system will appear. In this case, it is not possible to expect that a tendency to reabsorb initial income inequality increases through higher investments in the accumulation of physical capital – or other productive factors – will autonomously appear in the economic system. As a consequence, the neoclassical automatic counterbalancing mechanisms interlinking higher income inequalities with higher physical capital and human capital accumulation and innovation cannot be expected to be at work. Based on a mix of both primary and secondary data analysis, as well as a critical review of world literature, the current conceptual paper confirms that phenomena connected with financialisation affect the relative profitability of different assets on the supply side in main market economies taken into account. This moreover excludes both in theory and practice the emergence of the counterbalancing mechanisms which are normally assumed to be at work according to mainstream economic theory.

The present work clears the way for a more refined analysis of the mechanisms lying behind both the increased relevance of knowledge, human capital, innovation and the current lower profitability of investments in physical capital. Although introductory, the conclusions of the present study seem to the author to be particularly fruitful and useful for further refinements of studies involving the knowledge-based economy.

LOW PROFITABILITY OF PHYSICAL CAPITAL ACCUMULATION AND RISING WEALTH TO INCOME RATIO

In earlier studies (Valente, 2016a; 2020a) based on Piketty (2014a), it was pointed out that a very relevant feature of the evolution of modern economies is that, as shown in Figure 1, higher income inequalities, lower economic growth and physical capital accumulation rates have appeared in all major market economies since the 1980s. Those trends can be, moreover, interpreted as a sign of lower

profitability of investments in physical capital (Valente, 2020a) in comparison to the former industrial or golden era phase of development of market economies during the period from the 1950s to the 1970s (Cf. i.e. Piketty, 2014a; 2014b; 2014c; Kunkel, 2014; Mikuła, 2006). The affirmation of the phases of development characterized by:
– higher physical capital profitability, lower income inequalities, higher economic growth rate and higher physical capital accumulation in the period from the 1950s to the 1970s,
– lower physical capital profitability, higher income inequalities, lower physical capital accumulation and lower economic growth, as during the current knowledge-based economy phase,
could be explained based on Keynesian and Classical-Keynesian theory (Valente, 2020a).

     According to the author and other scholars (Galbraith, 2014; Homburg, 2014; Kunkel, 2014), although significant in highlighting the problem and providing data on which the present study is based upon, the analysis proposed by Piketty (2014a) fails to integrate those trends with the knowledge-based literature (i.e. Godin, 2006; Jabłoński, 2012; Kelly, 2001; Mikuła, 2006; Pietruszka-Ortyl, 2006) and mainstream endogenous growth theory (Aghion, Howitt, 1992; Galor, Moav, 2004; Lucas, 1988; 2004; Mankiw, Romer, Weil, 1992; Romer, 1986; 1994; Sala-i-Martin, 1990a; 1990b).
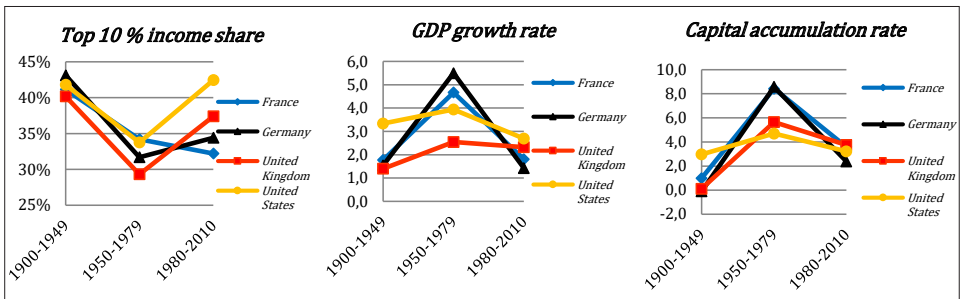

Figure 1. Relevant macroeconomic trends
Source: own work on the basis of Piketty (2014a) and Maddison project datasets (Valente, 2016a).

     As well as the trends presented in Figure 1, however, a step increase in the wealth to income ratio similar to income inequalities variation has been observed since the 1980s (Cf. Figure 2 and Piketty, 2014a).

     A careful consideration of this increase in wealth to income ratio can provide, according to the author, a sound base to understand the reasons lying behind the emergence of financialisation in modern economies. It also provides some suggestive fundaments upon which to base a more refined analysis of income distribution, economic growth and profitability of investment in different kinds of assets inter-linkages. It allows, as a matter of fact, the integration of the Piketty analysis

with the knowledge-based economy literature and with mainstream and heterodox theory considerations, concerning income inequalities and their linkages with productive factors accumulation and economic growth. In the next section it seems worthwhile discussing in more detail the trends presented in Figure 2.
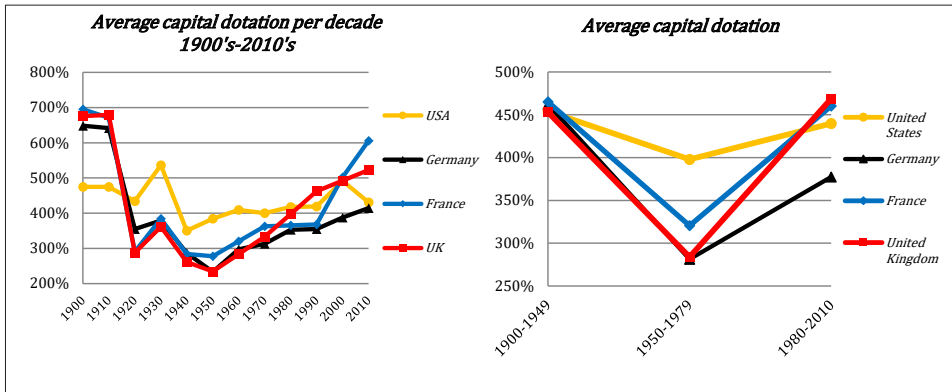

Figure 2. "Capital" or wealth to income ratio

Source: own work on the basis of Piketty (2014a) datasets (Cf. Valente, 2016a).

WEALTH TO INCOME RATIO AND DIFFERENT KINDS OF ASSETS AVAILABLE IN AN ECONOMIC SYSTEM

Although Piketty (2014a) refers to these trends as 'increases in the capital to income ratio', and notwithstanding the relevant controversies concerning the physical capital definition present in economic theory, which also affect his work (Galbraith, 2014), the composition of capital, as per the Piketty formulation, is somewhat far from the typical definition of capital adopted in economics. It is instead closer to the concept of wealth as traditionally defined in economic theory. Capital according to Piketty (2014a) is, as can be easily observed in Figure 3, composed by the financial value of assets plus the market value of housing and agricultural land.

While at first glance seemingly troublesome (Galbraith, 2014; Homburg, 2014), the definition adopted by Piketty (2014a) is, however, really useful in linking Keynesian and Classical theory-based considerations concerning physical capital accumulation and its links with economic growth and income distribution, as well as the phenomena of financialisation and mainstream endogenous growth theory considerations concerning innovation, knowledge and human capital.

As already stressed by some (Homburg, 2014; Galbraith, 2014), the decomposition of Piketty's (2014a) wealth to income ratios tends to support the conclusion that high income inequalities periods (1900s–1940s and since the 1980s) are characterised, respectively, by high land to income and high housing to

income values (Homburg, 2014). The statement that capital is back[4], as presented by Piketty (2014a), can then be considered misleading and must be rejected (Homburg, 2014; Galbraith, 2014).
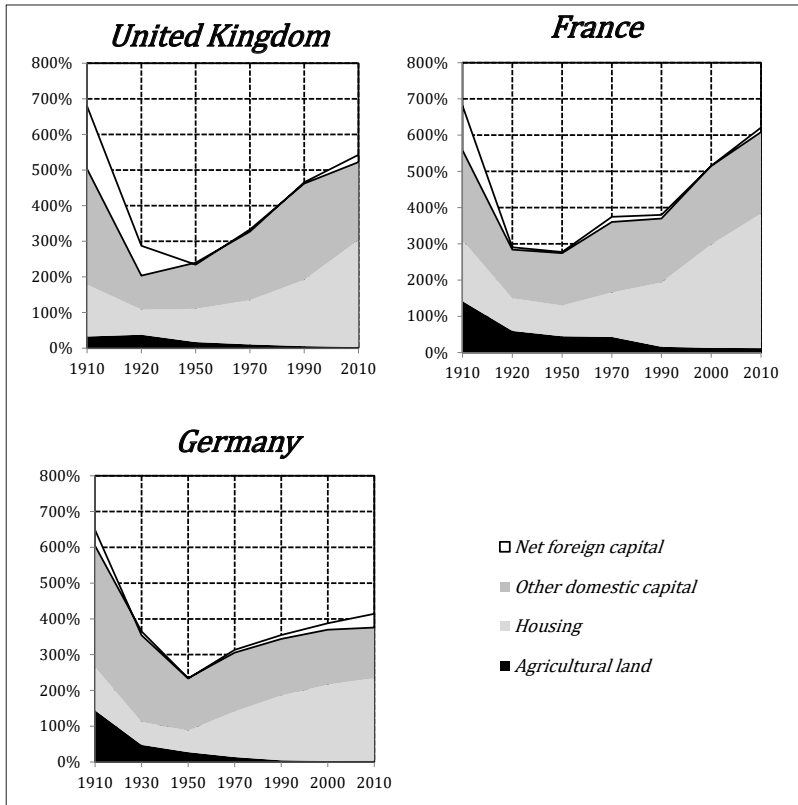

Figure 3. Wealth to income ratio decomposition

Source: own work on the basis of Piketty (2014a) datasets.

To the contrary, it is possible to suggest that the financial value of assets, which can be loosely reconnected to physical capital, was stable between 200 and 300% of income value for the most part of the period taken into account – e.g. the whole of the 20th and 21st centuries. These data tend to support the idea that, as per the results of the Cambridge capital controversies, the financial value of capital does not necessarily univocally correlate with lower or higher availability of physical capital in terms of the amount of machine, plant, equipment or productive capacity (Galbraith, 2014)[5].

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[4] Considered both in the physical form of plant and machinery or in terms of the financial value of these kinds of assets.

[5] This seems even more true if the unreported data in Figure 3 about the United States are taken into account. As any economist well acquainted with economic history would assume, it follows

Secondly, as per Piketty's (2014a; 2014b; 2014c) arguments and in contradiction to the assumption prevalent in most of economic theory according to which economic system functioning can be simplified to a scenario in which different kinds of assets available can be left aside to focus just on physical capital, the availability of other assets composing wealth can be relevant in maintaining and further deepening the disparities in the distribution of wealth and income. Based on the correct appreciation of the Cambridge capital controversy, according to the author, it is possible to emphasise that from Piketty's (2014a) data it logically derives that wealth owners are not interested in the form that their wealth takes (Piketty, 2014a; Garegnani, 2011; 2012; Galbraith, 2014). For them, any kind of asset is profitable and worth investing in until it continues to generate a positive amount of interest, profit or capital gain and ensures them the possibility of transferring to themselves or their heirs the actually possessed wealth and the currently saved income they add to it (Piketty, 2014a; 2014b; 2014c; Garegnani, 2011). Taking into account both the considerations of economists, surely better acquainted than Piketty with the Cambridge capital controversy,[6] and the different roles played by wealth owners and entrepreneurs in an economic system, it seems possible to suggest that, in opposition to that assumed in mainstream neoclassical theory (Solow, 1956; Sala-i-Martin, 1990a; 1990b), a rise in income inequalities and an increase in the availability of savings do not necessarily imply an increase in physical capital accumulation.

If other assets exist, then increases in wealth and savings can, as a matter of fact, be reabsorbed partially or totally by an increase in the value of assets other than machines, equipment and durable goods employed by enterprises in the production of goods and services. Such an eventuality (which seems, to the author, to describe the situation actually taking place since the 1980s based on the data) leads then to the possibility that an increase in income inequalities, and an increase in the amount of the savings it supports, can very well generate an increase in the value of assets not directly employed in production, in comparison to the value of durable goods available at the company level or to the total value of companies operating within an economic system.

THEORETICAL IMPLICATIONS OF THE AVAILABILITY OF DIFFERENT KINDS OF ASSETS IN AN ECONOMIC SYSTEM

When considering the theoretical implications of the data under analysis, the availability of different kinds of assets seems to loosen even further the

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from the data that the market value of firms operating in a country rose in comparison to income exactly in coincidence with the emergence of speculative phenomena on stock market as those registered before the 1929 and 2008 crises.

[6] Cf. (Garegnani, 1966; 1978; 1979; 2012; Han, Schefold, 2006; Harcourt, 1972; Pasinetti, Scazzieri, 2008) with the incorrect summing up of the capital controversy presented by Piketty (2014a) and the correct restatement of the matter by Galbraith (2014).

linkage, so important in mainstream theoretical elaboration[7], between the supply of savings or capital supply, on the one hand, and investment demand and physical capital demand, on the other. This constitutes an additional argument supporting the independence of the investment decisions taken at the company level and physical capital accumulation at the aggregate level, from the amount of monetary funds available in the form of savings or capital supply in the economy. This can, moreover, be considered an additional argument confirming the appearance of acceleration mechanisms, which can be argued to have been at work during the whole of the 20th and 21st centuries, based on the data presented in Figure 1 (Valente, 2020a). If a relevant part of the savings and wealth is allotted to assets other than physical capital, it is indeed perfectly possible to raise capital accumulation even when the savings or wealth to income value are decreasing or remaining stable. Raising physical capital accumulation would, as a matter of fact, require just a reduction in the wealth owners' investments in assets other than capital. Moving funds from one asset to another allows the financing of additional capital accumulation and investments without necessarily requiring an increase in total savings. At the same time, an increase in savings or accumulated wealth does not necessarily imply an increase in physical capital accumulation. These additional amounts of savings or wealth can be invested in completely different assets, such as those not generating any increase in physical capital accumulation.

The independence of investments and capital accumulation from savings and capital – or more properly wealth – supply is moreover in accordance with other theoretical arguments supporting the same result, such as those:
– presented by Keynes (1936) in his discussion of the paradox of thrift,
– supporting long run acceleration mechanisms and path-dependency in post-Keynesian literature (Bhaduri, Marglin, 1990; Garegnani, 1962; 1983; 1992; 2011; Kalecki, 1974; 2013a; 2013b; Keynes, 1936; Onran, Stockhammer, 2001a; 2001b; Lavoie, Stockhammer, 2013; Petri, 2003; 2013; 2015; Valente, 2019a),
– provided by authors critical of mainstream theory during the Cambridge capital controversy, supporting the idea that physical capital availability in terms of productive capacity or whatever physical amounts of machines and equipment (e.g. vectorial term) and the financial value of the very same capital assets (i.e. its scalar measure) do not univocally correlate (Cohen, Harcourt, 2003; Garegnani, 1966; 1978; 1979; 2012; Han, Schefold, 2006; Harcourt, 1972; Pasinetti, Scazzieri, 2008; Samuelson, 1966; 1983; Sraffa, 1960; Valente, 2014).

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[7] Cf. (Galor, Moav, 2004; Lucas, 1988; 2004; Mankiw, Romer, Weil, 1992; Romer, 1986; 1994; Solow, 1956; Sala-i-Martin, 1990a; 1990b) with the critical considerations presented in (Petri, 2003; 2013; 2015; Setterfield, 2014; Valente, 2016a; 2016b).

The availability of assets that differ from physical capital in which wealth owners can lock their wealth weakens[8] the mainstream idea that the increased availability of savings or wealth – normally labelled as capital – supply will lower interest rate, and through that incentivise an increased accumulation of capital in real terms on the demand side due to an easier and cheaper availability of funds to finance investments. In reality, other assets exist in an economic system, and wealth owners are not necessarily forced to lend their funds to entrepreneurs interested in borrowing them at a lower interest rate, to realise decreasingly profitable investments in productive capacity expansion as per both neoclassical theory of the decreasing marginal productivity of the factors employed in production (Cf. Eatwell, 1987; Samuelson, 1966) and Keynes's (1936) schedule of marginal efficiency of capital. They can, instead, lock their wealth in other kinds of assets. It is perfectly possible for them to increase the funds allotted to:

– financing human capital accumulation, which is comparable to investments in equipment and machinery, at least if some kind of link between normal profits someone can expected to achieve investing in physical capital accumulation, and the profits – in the form of higher wages in comparison to the ones an unqualified worker can expect to earn during his working life – a person needs to be convinced that they can achieve thanks to the time and the income which he/she dedicates, both directly and indirectly, to the improvement of his/her qualifications (Smith, 1776);

– funding research and development as well as innovation-connected activities, allowing companies to introduce new methods of production or to develop new – or significantly improved – goods and services;

– investing in assets whose value is less closely connected with any actual need of production, giving rise, in most cases, to their appreciation and eventually to speculative processes.[9]

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[8] As a matter of fact, the mechanisms discussed in the paper will also cause the loosening of counterbalancing mechanisms, which can be expected to be at work according to Keynesian and Classical theory. Although such implications will be discussed in other papers and left temporarily aside for the sake of space, according to the author this explains how, under a regime of increased income inequalities, stagnation in economic growth and physical capital accumulation – as occurred in 1900-1940 and the ongoing one started in the 1980s – can be sustainable for long periods of time, without harmful consequences for wealth owners. The availability of other assets does not, indeed, undermine just the more optimistic neoclassical point of view discussed in the main text, but undermines the pessimistic idea that the lower aggregate demand (though lower economic growth and less profitable capital accumulation) will compromise sooner or later the wealth owners' own source of income. On the basis of the data, the author considers this mechanism to be not necessarily at work. Wealth owners can, indeed, continue to achieve high incomes based on sources different than the financing of stagnating and less profitable physical capital – or other production needs-connected assets. A lack of interventions supporting a rise of more production-oriented assets profitability or a reorientation of portfolio choices toward them will, however, still have negative effects on the economic system as a whole, leading, as at present, to lower economic growth, higher instability and more frequent demand driven crises.

[9] Cf. considerations about land and housing prices in later parts of the main text.

Moreover, choosing other assets as an alternative to physical capital can be considered even more profitable from the point of view of wealth owners, if acceleration mechanisms are at work in the economic system as per Keynesian literature (Bhaduri, Marglin, 1990; Garegnani, 1962; 1983; Kalecki, 1974; 2013a; 2013b; Keynes, 1936; Lavoie, Stockhammer, 2013; Onran, Stockhammer, 2001a; 2001b). Based on this, it is possible to expect that the negative effects caused by rises in inequalities in income distribution, which will decrease the propensity to consume, employment, wages and aggregate demand, both in the short and the long run, will also generate a fall in physical capital accumulation profitability. As a result of income inequality increases, the demand for both physical capital and investment by firms will reduce, while the risk connected with the realisation of whatever amount of investment in physical capital will increase. Consequently, when, as in reality, other assets are available in the economy, then the wealth owners will judge lending their funds to subjects engaged in physical capital accumulation less profitable. In these cases it will be more reasonable for them to invest their wealth in other assets instead. Income inequality increases cannot, then, be expected to cause an increase of investment in physical capital and a reduction in the interest rate which savers and wealth owners perceive when lending their funds to companies, which would result in less profitable and more risky investments in productive capacity expansion. The increases in either income distribution inequalities or wealth to income ratio will be more likely to lead to changes in the allocation of wealth and the reorientation of portfolio choices away from physical capital and toward other assets, in accordance with what seems to emerge from the data in Figure 3 and Figure 4[10].
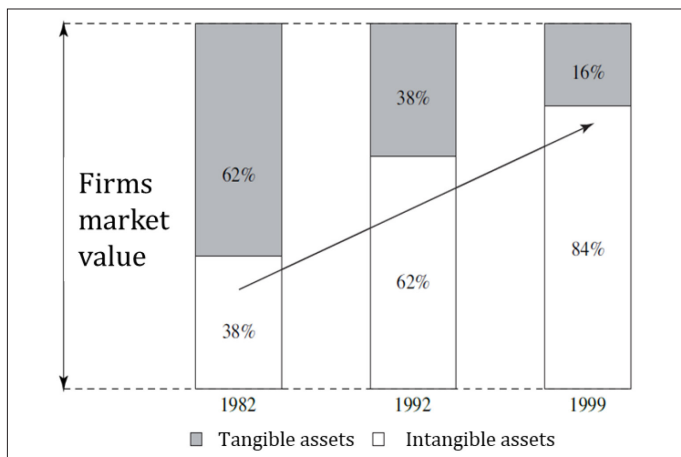

Figure 4. Role of tangible and intangible assets in determination of companies market value

Source: author data based on (Pietruszka-Ortyl, 2006, Figure 3, p. 95).

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[10] The market value of companies presented in Figure 4 can be roughly considered a further decomposition of *Other domestic capital* category presented in Figure 3.

While more detailed argumentation is needed in the case of human capital accumulation and innovation, which will be for the most part postponed to other papers,[11] the availability of housing and land provides a convincing argument to negate or at least encourage a serious questioning of the neoclassical assumption according to which autonomous forces reabsorbing the initial changes in income distribution and contrasting them will always appear.

As was strikingly evident in the case of the skyrocketing value of agricultural land to income ratio at the start of the 20th century, and to a lesser degree in the case of the rising value of housing to income ratio since the 1980s, if some assets alternative to physical capital are available in the economy and prone to appreciation without any direct connection to any production need in the economy (Cf. Galbraith, 2014; Homburg, 2014), then speculation will occur, being possible for the wealth owners to affect the value of both those assets and, eventually, the value of their own incomes and wealth. In considering the data, it seems obvious that the high land to income ratio experienced in the period from 1900s until the start of the 1950s has no justification in terms of increases in the quantities of land to income (Homburg, 2014). The quantity of agricultural land available in a given country is, indeed, for the most part fixed in amount. Similarly, relying just on the appearance of an unprecedented urbanisation process, which can be assumed to have been taking place in an unexpected and constant magnitude since the 1980s in such developed countries as the United States, the United Kingdom, France and Germany, does not appear to be a plausible explanation to justify the step increase in housing value registered in those countries in the same period. The appearance of housing appreciation, their quantity being almost stable in comparison to income, is then the most likely reason for the emergence of those data. It can be thus considered to be a case of financialisation and speculation, leading to significant increases in the unitary price of such an asset type (Galbraith, 2014; Homburg, 2014). This feature of the present phase of economic system evolution can thus be considered very relevant. Both the theoretic possibility that such phenomena can take place, and their actual occurrence in the present major market economies seem to the author worthy of consideration. Those phenomena can, as a matter of fact, help explain the evolution of income inequalities during the whole 20th and 21st centuries, provide a linkage between the different models available to explain the knowledge-based economy phenomena and allow the integration of the differ-

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[11] It seems worth pointing out that when aggregate demand and economic growth rate are lower and more unstable, a decrease in the profitability of physical capital accumulation will be registered, while more flexible human capital and innovation-oriented investment projects will become more attractive (Cf. Valente, 2020a; 2020b). Changes in fund allocations emerging from Figure 4, are, moreover, paralleled by changes in management strategies, which support a reorientation from physical capital toward human capital and innovation (Valente, 2020b). Investment decisions by entrepreneurs connected with wealth demand will thus partially reinforce the supply side mechanisms considered in this paper.

ent points of view concerning the phase of development of the modern economic system, which are available in the literature (Cf. Valente, 2020a).

Conclusions

The presented data and theoretical considerations primarily negate the idea that the more uneven income distribution is, and the higher the availability of savings or capital supply is, the greater will be the amount of investment and physical capital accumulation occurring in any given economic system. It is, furthermore, possible to exclude the idea that a more uneven income distribution and increased wealth and savings supply will lead to the appearance of lower interest rates perceived by wealth owners lending their funds to companies, and, similarly, it is unreasonable to expect that they will generate a fall in the profit rates attainable by entrepreneurs actually realising investments in physical capital accumulation. If instead of lending their increased wealth and savings at lower interest, wealth owners could allocate them to other sectors and invest them in other assets, as currently seems to be happening, then no automatic mechanism counterbalancing the initial inequalities in income distribution can be reasonably assumed to be at work, even in the very long run. This is, indeed, at odds with the appearance of any such kind of mechanism, to the contrary of what mainstream theory assumes both in its exogenous as well as in endogenous growth model versions.

Secondly – similarly to the independence of the investment decisions originally stressed by Keynes (1936) in the case of enterprises realising investments in physical capital – it seems logical to assume, based on the presented trends and considerations, that nobody in a free-market economy can force a saver or wealth owner to finance physical capital accumulation if other assets are at the same time available and profitable. This statement can, moreover, be considered even more true, if, as can be argued to happen under mainstream and Keynesian theoretic argumentation (Cf. i.e. Keynes, 1936; Garegnani, 1962; 1983; Kalecki, 1974; 2013a; 2013b; Lavoie, Stockhammer, 2013; Onran, Stockhammer, 2001a; 2001b; Galor, Moav, 2004; Lucas, 1988; Mankiw, Romer, Weil, 1992; Sala-i-Martin, 1990a; 1990b; Solow, 1956), an increase in funds allotted to physical capital accumulation also implies lower interest and/or higher risk for a wealth owner, decreasing investment profitability, increasing its riskiness or leading to both outcomes at once.

Thirdly, those mechanisms leading to portfolio choice changes have in all evidence to be taken into account. They can be, as a matter of fact, considered as a sound base to interlink different phenomena characteristic for the present phase of development of modern market economies. Together with the already provided analysis of data supporting the consideration of knowledge-based economy as a phase of development of modern economies characterised by low profitability

of investment in physical capital, high income inequalities, lower physical capital accumulation and lower economic growth rates (Valente, 2016a; 2020a), the present study provides some reasons to justify the persistence of such a regime of growth even over very long periods of time. Without taking into account portfolio choice changes and the existence of different assets, the long run affirmation of such a regime would have been unexplainable. It is worth emphasising that to improve the understanding of modern economic systems, it is crucial to include in the theoretical models those assets not directly connected with production needs, adding them to the physical capital and any number of other assets connected with production needs. Traditional models, not including assets not used as productive factors, would have supported the necessary appearance of tendencies reverting income inequalities increases and reductions in the profitability of assets used as production means, which we are not experiencing in modern economies in practice. In those models, a decrease in interest rate and profits would have negatively affected the wealth owner's patrimony, putting autonomously under check any further rise of inequalities in the distribution of wealth and income. The availability of assets prone to appreciation and not connected with production needs, on the other hand, leads to the conclusion that such mechanisms would not necessarily appear. This can then explain how economies today can be facing a situation where the total wealth supply is constantly rising, while the accumulation of physical capital on the demand side is stagnating at the same time.

It is worth noting that together with the demand side effects on the entrepreneur's willingness to invest in different production needs linked assets, this leads to the conclusion that, in opposition to what is assumed from the knowledge-based economy point of view (Cf. Valente, 2020a), no other need arises for the development of completely new theoretical models in order to interpret knowledge-based economy. A careful integration of Keynesian and Classical theorists' considerations with some of the arguments available in mainstream endogenous growth theory (Valente, 2016b) and the study of historical evolution of management methods through the 20th and 21st centuries (Valente, 2018; 2019b; 2020b) seem, instead, the most fruitful directions for present research and the most profitable road to further refinement of the author's analysis of the knowledge-based economy phenomena.

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Summary

Based on a data and literature analysis as well as autonomous theoretical reasoning and argumentation by the author, the present article discusses the relevance of financialisation and portfolio choice changes under the present phase of development of modern economies. Relying upon the earlier studies by the author which stress that knowledge-based economy can be characterised as a low profitability of investment in physical capital, higher income inequalities, lower physical capital and economic growth rate phase of the development of economic systems, the present work provides variously conceived arguments to support the idea that significant portfolio choice changes by wealth owners are a relevant feature of knowledge-based economy. Some of the implications of the economic theory of the availability of assets other than physical capital and other assets more connected with production needs were thus discussed, pointing out that this leads mainly to the negation of the necessary arrival of mainstream counterbalance mechanisms which support the affirmation of higher physical capital accumulation when higher income inequalities are recorded.

Keywords: Keynesian theory, income distribution, financialization, knowledge-based economy, economic growth.

Gospodarka oparta na wiedzy: decyzje portfelowe posiadaczy bogactwa i finansyzacja, analiza podaży bogactwa

Streszczenie

Na podstawie zarówno analizy danych, literatury naukowej, jak i samodzielnie opracowanej przez autora argumentacji i rozumowania teoretycznego, artykuł analizuje ważną rolę finansyzacji i zmian w doborze oraz optymalizacji portfelowej w obecnej fazie rozwoju współczesnych gospoda-

rek. W oparciu o wyniki wcześniejszych badań autora, z których wynikało, iż obecną fazę rozwoju można scharakteryzować jako okres niskiej opłacalności akumulacji kapitału fizycznego, wysokich nierówności w podziale dochodu, niskiego wzrostu gospodarczego i spowolnionej akumulacji kapitału, niniejsza praca przedstawia argumenty różnego pochodzenia, które popierają pogląd, iż znacząca realokacja portfelowa podejmowana przez posiadaczy majątku jest ważną cechą gospodarki opartej na wiedzy. Przedstawiono niektóre z implikacji związane z teorią ekonomiczną, jakie wynikają z dostępności aktywów różnych od kapitału fizycznego i innych aktywów bardziej związanych z potrzebami produkcyjnymi, podkreślając przy tym, że prowadzi to do negacji koniecznego pojawienia się automatycznych, równoważących mechanizmów, popieranych przez teorię neoklasyczną, na podstawie których pojawienie się wyższych nierówności w podziale dochodu prowadziłoby do występowania większej akumulacji kapitału fizycznego.

Słowa kluczowe: teoria Keynesowska, podział dochodu, finansyzacja, gospodarka oparta na wiedzy, wzrost gospodarczy.

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