przegląd organizacji

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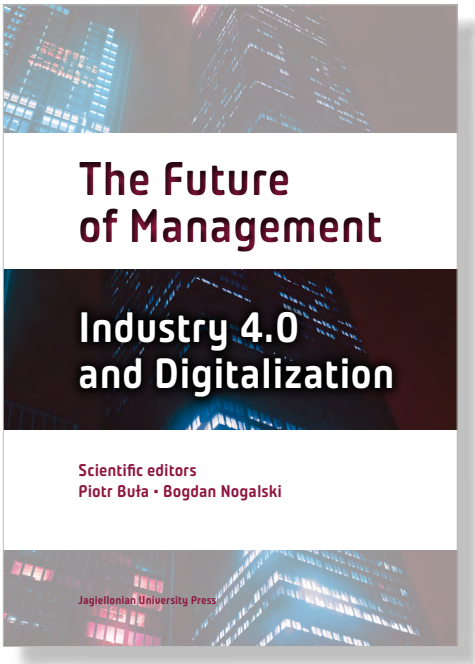
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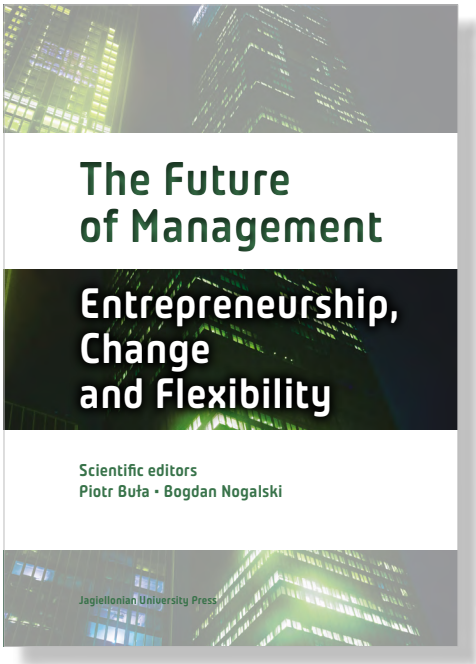
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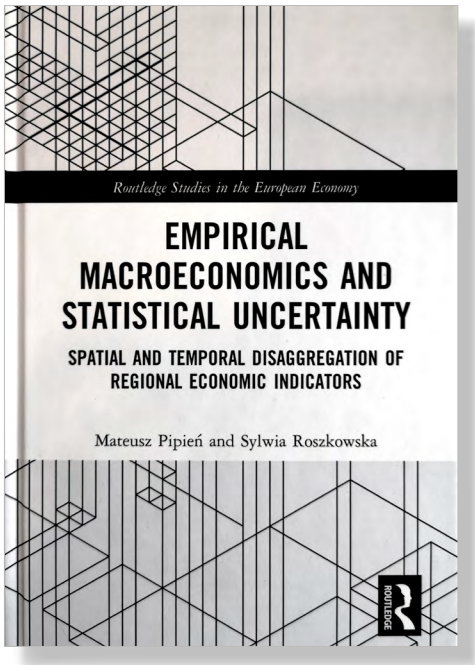
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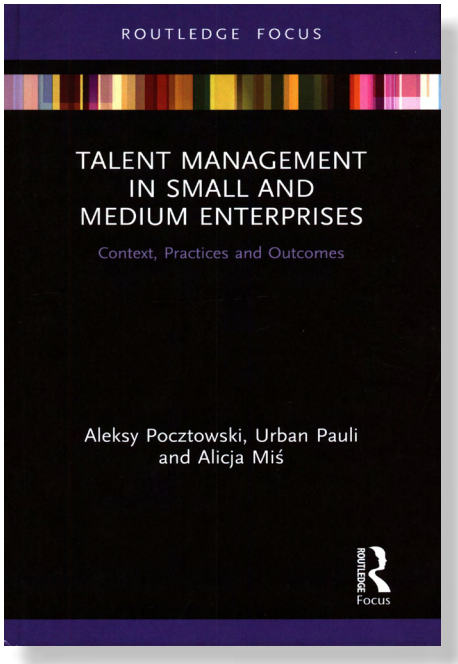
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CHALLENGES AND GOALS OF THE CRACOW UNIVERSITY OF ECONOMICS IN THE 2020-2024 TERM OF OFFICE

Interview with the Rector of the Cracow University of Economics, Prof. Stanisław Mazur, conducted by the Editor-in-Chief of Przegląd Organizacji, Prof. Stanisław Brzeziński.

Professor Stanisław Brzeziński

Professor Stanisław Mazur

Professor Stanisław Brzeziński (SB): On 1 September 2020, you took up the post of the Rector of the Cracow University of Economics, the largest university of economics in Poland. Please tell me about your election campaign and what you did to persuade the University's academic community to vote for your agenda.

Professor Stanisław Mazur (SM): I have the impression that this was the longest and hardest election campaign in the history of our University. The pandemic and the March lockdown forced us not only to suspend the election meetings and move a significant proportion of our activities to the Internet, but also made us reorganise and re-evaluate our thinking about our University, its role and the tasks it faces. Moreover, this campaign saw certain behaviours often present in politics, which should never take place in the academic world. Fortunately, all this is now behind us.

As regards the second part of your question, at the very outset of my election efforts, I adopted the motto „A Community of Great Opportunities" with reference to our University. The plans and intentions I put forward in the process all derive from the ensuing axiology. I realised, which was confirmed by the election results, that this belief met with a great deal of understanding on the part of the CUE community, which is well aware that the times of slow development of academic institutions are already behind us. What counts is only a dynamic leap forward, a marked improvement in the quality of research, teaching, and ensuring comfortable conditions for research and studying. A change that will make our University a unique centre of competence in social sciences and engineering, attract ambitious young academics and draw the attention of business and the public sector. A change that will immediately associate studying at CUE with intellectual adventure and the opportunity to gain marketable qualifications. Finally, a change that will make us a better community in purely human terms. A community committed to working together, showing solidarity, empathy, and ready to help.

SB: What changes have already taken place in the functioning of the Cracow University of Economics as a result of the reform carried out by the new authorities?

SM: I think that one of the most expected and at the same time necessary changes at the University was the reorganisation of its administrative structure and the introduction of new organisational regulations. After extensive consultations with the staff, we introduced new solutions based on three Rector's Divisions and four Departments. We have improved the operation of a number of units while aiming to reduce the level of bureaucracy. We keep improving the technological solutions used for both remote teaching and University management. Other changes, already initiated by my predecessor, include the modernisation of the CUE Campus. Work is currently underway on the construction of the CUE Forum and the thermal insulation of the Main Library building. We have applied to the Minister of Education and Science for funding to modernise our dormitories (Merkury and Fafik). We have started preparations for the construction of a modern, passive, ten-floor teaching facility, which will house, among other things, an integrated Dean's Office serving students of all the constituent colleges, and spaces for joint work.

SB: What do you consider to be the most urgent and important tasks to be carried out during this term of office?

SM: An important and urgent task is to strive for continuous upgrading of the quality of research and publications authored by the staff of the Cracow University of Economics, which will improve our position in the rankings. To this end, as of January 2021, the CUE Scientific Excellence Fund will become operational. Its aim is to increase the number of publications in highly ranked journals included in the ministerial list, international journals with high impact factors, and the best scientific publications.

It is also very important for me to build a socially responsible university, a green university geared towards ecology. The already mentioned construction of the new teaching facility, which will meet very high ecological standards, will certainly contribute, as will a host of small changes meant to encourage even more efficient recycling and upcycling, as well as waste segregation. A socially responsible university is also a university that is friendly to people with disabilities, open to the elderly, children and young people, which takes care of its employees, including those who have retired, and open to dialogue.

SB: What steps will you be taking to further improve the quality of education and research at CUE to a greater extent than before?

SM: We are currently reforming CUE's education policy. It is now based on participatory learning methods, problem-based education, the implementation of new technologies in education, practice-oriented learning, and real-time modelling of the teaching process based on planned learning outcomes. It is not easy, but I believe that it is worth doing. It is impossible to achieve a sufficiently high level of education without a staff of outstanding scientists, specialists in their fields, committed to self-development and teaching. However, in order to achieve such a level of commitment, competence, and knowledge, the university must provide its staff with the necessary support – freedom of scientific research, access to specialist training programmes, workshops, and seminars. Effective motivational tools are also necessary, such as financial bonuses and desirable promotion opportunities. We therefore plan to set up and implement the CUE Teaching Excellence Fund as soon as possible. The fund will be used entirely to improve the competences of our research and teaching staff and to enable them to participate in national and international conferences and seminars.

SB: What is the vision and strategy for the internationalisation of the University to be implemented between 2020 and 2024? Our readers are particularly interested in the steps to be taken to attract candidates from other countries to CUE programmes as well as lecturers from renowned foreign universities. Will the University participate in international research and educational programmes?

SM: International cooperation, both in the field of research and education, is one of the key measures I would like to introduce during this term. We are currently preparing solutions to effectively support our employees in their participation in international teams. We are expanding the catalogue of tools to support their travels to prestigious international conferences and internships abroad, and to increase the number of international scholars visiting our University. We intend to offer the latter not only competitive remuneration packages, but also comfortable housing conditions.

I believe that the internationalisation of our University is a necessary condition for its development. We have already achieved a lot in this area, but much still remains to be done. We intend to broaden our offer of high quality courses delivered in English, to increase the quality and comprehensiveness of services provided to foreign students – from admission to graduate tracking (e.g. the Dean's Office, consultancy, etc.), and implement conscious, professional and well-planned recruitment of foreign students, using e.g. a network of partner universities. It will also be important for us to obtain international accreditations. Our strategic goal is to achieve 20% of internationally accredited fields of study.

SB: Between 2017 and 2020, the Polish government implemented a reform of the science and higher education system. Please tell us what you think about the reform and its impact on the development of Polish universities.

SM: The reform of the science and higher education system in Poland draws heavily on the New Public Management paradigm. As such, it emphasises the productivity of the research sector, strengthening its capacity to obtain external funds, with the legitimacy of public funding being tied to parametrically conceived scientific achievements, introduces selected elements of corporate governance into the institutional order of universities (e.g. university councils), and strengthens the position of rectors at the expense of collegial bodies. Poland's path of reforming the science and higher education system is very similar to that pursued by other countries. It is, as I have mentioned, based on New

Public Management principles and mechanisms. At the same time, it is strongly imbued with features of public governance, especially in the area of designing and agreeing on solutions that constitute the basis of this reform. Therefore, to some extent, it can be presumed that both the positive and negative consequences of changes introduced to the science and higher education sector in Poland will be consistent with those seen in countries which had started their reforms earlier. Positive changes will likely include improved quality of research, increased scientific merit of publications, greater recognition of Polish universities on the international map of science, as well as – partly – the commercialisation of research. However, the potential negative phenomena may include lowering the profile of teaching, excessive economization of university activities, and the reduced procedural flexibility resulting from extensive parametric evaluation systems.

SB: There is an opinion that higher education in Poland is one of the least integrated systems of its kind in Europe. Would you agree?

SM: Yes. A number of studies support this opinion. Many countries are taking steps towards greater structural integration of their science and higher education systems (e.g. the recent measures adopted in France). As a result, universities become larger in terms of the number of students, the number of employees, the financial resources available (although the specific mechanisms and forms of integration differ by country). One of the effects of this process is that these universities move up in various international rankings. The regulations currently in force in Poland also enable universities to strengthen cooperation (e.g. in the form of federations). I admit that I do not have full information on the extent to which Polish universities are making use of this opportunity, but I have the impression that it is limited. It cannot be ruled out, however, that in the future, they too will follow in the footsteps of many foreign universities.

SB: At the end of this interview, please tell our readers about the main objective that you have set yourself for this term of office, that is, for 2020–2024?

SM: During my term of office, I would like the Cracow University of Economics to become the leading Polish university of economics and occupy a prominent place on the international map of science. I will spare no effort to ensure that our Alma Mater, which is currently a „Community of Great Opportunities", becomes a „Community of Great Exploited Opportunities".

SB: Thank you very much for this informative interview. I wish you much health, optimism, and enthusiasm in managing such an excellent institution as the Cracow University of Economics.

ORGANISATIONAL ASPECTS OF RESEARCH ON MANIPULATION IN ADVERTISING IN AN INTERNATIONAL ENVIRONMENT

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Jan W. Wiktor
Katarzyna Sanak-Kosmowska

Introduction

The article aims to assess the perception of online advertising manipulation by e-consumers in the international environment. The title problem can be considered from a substantive, cognitive and methodical perspective. In the cognitive dimension, the specific objectives relate to the evaluation of the advertising message and the advertiser's hidden intentions, the impact of online advertising on e-consumers, and the importance of advertising in the purchasing process by consumers. The article aims to identify the degree of similarity or differentiation in the perception of advertising by e-consumers in the international dimension.

It is the methodical aspects that stress the issue of the organisation of research in its international perspective. It results from the character of *Przegląd Organizacji* and the essence of the problem itself. The title problem is significant as such, and it is also interesting and complex – similarly to the issue of social manipulation in its epistemological and methodical dimension. It represents a research gap, encouraging scientific studies in this field at both interdisciplinary and international level. The complexity of research in these dimensions is stressed in general and basic methodological literature: ontology and epistemology (Poper, 2002; Woleński, 2019; Bryman, 2008; Nowak, 2007) as well

as in specific research studies including the methodology of management sciences (Czakon, 2016; Kuciński, 2010; Sagan, 2016). The interdisciplinary and international character of research offers various opportunities, but it also poses a serious challenge. It is the question of accepting the adopted paradigms of particular disciplines and subdisciplines, concepts, language and employed methods. The development of sciences requires an increasing focus on specialised areas but also the necessity to push tight boundaries between particular disciplines. Formulating correct diagnoses and explaining the increasingly complex reality encourage integration of research disciplines and specialities and a synthesis of other than „economic disciplines". Answers to questions posed by „economic sciences" and their disciplines can be often found beyond economics.

Research undertaken in an international environment involves a number of issues (Aluchna, 2010; Swacha, 2016; Witek-Hajduk, 2020). Three aspects are significant from the perspective of this paper. Firstly, it is the issue of identifying correctly the core of the research problem in an international dimension. By definition, problems in natural, technical and engineering sciences are global in character, while in social sciences they also relate to local spaces and organisation and management matters relevant to the national dimensions of research and analyses. In this context, the components of problems in management sciences reflect the functions and tasks relevant to national or regional development.

Secondly, international research, particularly empirical studies, imposes certain requirements on research teams. In the organisational perspective, it necessitates adherence to specific principles of cooperation, coordination and communication in team work, the way of performing a group leader's functions and leadership styles, trust, personality and – let me cite Professor Kotarbiński's meaningful word – „subservience" (Kotarbiński, 1987). Each of these elements is complex and significant in itself. For example, let us stress the word „appropriate" – relevant to the home country of each team member (Hofstede et al., 2011), to planned tasks, the expectations of a leader and other people, time, organisational behaviour patterns, ethical standards of research activities etc.

Thirdly, it is the question of methods facilitating a diagnosis of the analysed fragment of reality, its explanation, evaluation and setting development trends. A method as a way to explore reality is „technical" and impersonal in character, while the way in which it is used in social research is confronted with a specific shape and characteristics of a given community – its inhabitants, stakeholders, managerial staff and superior-subordinate relationships in the context of various social and organisational roles. Moreover, these relationships are embedded in the actual social, cultural, economic and natural conditions, described in management sciences by means of the macro – and microenvironment configuration. At this stage of considerations, attention should be given to a significant methodical issue – the equivalence of functions, meanings, categories and measures in an international dimension (Jaciow, 2018). This problem itself deserves a broader description and analysis in a separate research study. It may constitute a significant barrier to effective communication among team members, hindering the implementation of international research projects. Equivalence, then, poses a serious challenge for researchers – adjusting the planned research tool to the specific characteristics of an international research sample.

The paper combines reflections on the organisation of international research with an assessment of selected elements of the obtained results. We regard the combination of methods and results as relevant to this paper. Exploring a specific fragment of reality – adopting a given methodical approach – is the main objective and mission of research work. In this approach, the paper aims to assess similarities and differences in the perception of online advertising in an international academic environment. This objective determines the structure of this work, which comprises two distinct parts. The first part presents the methodology of the conducted research, stressing its specificity and implementation methods; the second part presents synthetic results related to the perception of online advertising and a sense of content manipulation according to respondents in 13 countries.

The methodology of own research — specificity and problems of their organisation in the international environment

The research study presented in the paper was a pilot project under NCN[1]. It was based on an international survey conducted in May 2019. It was aimed to achieve two objectives. The first one – in accordance with the requirements of research methodology – was to assess a research tool in the form of a survey questionnaire. The second objective was to draw some cautious conclusions concerning the manipulative impact of online advertising on young consumers' market behaviour and buying decisions. Both objectives contribute to achieving the main objective of this work. The questionnaire was prepared in English and fully approved by research supervisors at each foreign university. The study was conducted using an online survey (CAWI) (Bryman 2008; Evans, Mathur, 2005; Jacobs et al., 2019; Rószkiewicz et al., 2013; Mącik, 2014). This form of survey has been fully recognised for years, and it is regarded as a significant tool in the methodology of social research, standing on equal footing with „traditional surveys". Obviously, the condition to be fulfilled is adherence to methodological rigour (Czakon, 2014), i.e. a sample size, the selection of participants, meeting the requirements of the representative character relevant to the analysed problem, surveyor-respondent communication methods etc. (Sobocińska, 2016).

The study covered a group of 955 respondents – students of economics, business, management and marketing from universities in 13 countries: 444 from Poland (46.5%), and 511 from 12 other countries (53.5%): Belgium, Croatia, China, Czechia, Finland, Georgia, Japan, Moldova, Romania, Slovakia, Turkey and Ukraine. The national samples differed considerably in terms of the number of partici-

pants (Japan, N=209; Ukraine, N=54; China, N=41), with an average of 25 participants from the remaining countries). We present the sample characteristic in Figure 1. The survey itself is a valuable cognitive experience of conducting an international research study regarding the complex and multidimensional problem of the perception of online advertising manipulation. Generally, the results of the pilot study indicated full approval given to the structure of questions and the cafeteria of answers. However, they raised certain doubts with regard to the interpretation of several problems including a cafeteria of advertising and its functions or the scale of information assessment in advertising.

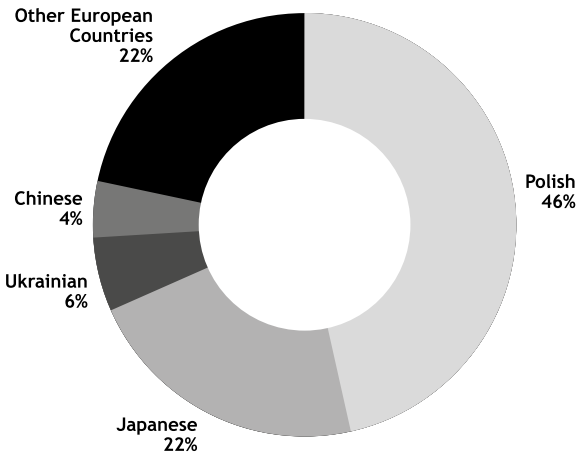

Figure 1. Sample characteristic
Source: own research

The research sample was totally homogenous owing to its three characteristics. Firstly, the group was made up of students; secondly, students represented identical or similar study programmes; thirdly, according to our assumptions, students were similar in terms of their digital competences and „digital lifestyle". The last characteristic seems to be justified by the digital competences of Generation Y despite visible gaps in the development of the digital economy and society at an international level (*International* …, 2018).

In the presentation of research methodology, we stress several aspects which are significant from the perspective of organising international research studies.

In Poland, we conducted a traditional survey (a random survey in paper form) and an online survey. It was intentional: we tried to find similarities in assessing online advertising using various methods. Does the way in which we explore a specific fragment of reality (research method) have an impact on final judgments? Anticipating other assessments, we can say yes. An analysis of results and the distribution of answers obtained from both surveys point to certain differences in assessment. With regard to several problems, those differences – despite meeting ceteris paribus requirements (sample homogeneity) – were considerable. This is a significant conclusion of the study. In this context, we can refer to a significant remark made by one of the participants of the traditional survey: „in the contemporary world we should not waste paper on surveys". We fully agree with this view and we stress the significance of sustainability, trying, as far as it is possible, to support this concept.

It was assumed that the pilot project – in accordance with methodical standards – would be based on opinions obtained from similar and relatively small groups (N=30) at each analysed university. However, realities turned out to be different. French, German and Italian students were not willing to participate in the survey. In Japan the situation was the very opposite. Within two days after launching the pilot project we received correctly completed questionnaires from 209 students (the survey was conducted by a Japanese, an employee of the university with whom we have cooperated for several years). We were curious about the reasons for this active attitude. *A request made to students by a professor is of special significance* – that was our Japanese colleague's answer. An online survey among students in China with the use of IT applications employed in the Middle Kingdom, was conducted by our Polish colleague, a Polish professor participating in a scholarship programme at Shanghai University. In the USA, the implementation of the research programme turned out to be impossible. All social research studies conducted at US universities are subject to a complex IRB verification system and evaluation procedures enforced by special faculty committees. We were informed that *respondents' interests should be protected*, and that a formal approval was necessary for conducting a survey at the university. Perhaps this requirement had to be met by one of the universities in the Central States. A professor's decision to conduct an independent research study can lead to a lawsuit.

Our focus on online advertising resulted from its visibly increasing significance in companies' communication. Let me just quote some figures: in 2019, the global advertising market was worth more than USD 600bn, and in Poland – more than USD 3bn. Global online advertising expenditure accounted for 24% of the total market, and in the USA and the UK it exceeded 50% of the total value, and in Poland it represented more than 30% of the advertising market (Raport IAB, 2019).

The research study comprised the following groups of issues: 1. Assessment of digital competences and Internet usage, 2. Perception of advertisers' intentions and advertising messages, 3. Assessment of the impact of advertising on e-consumers, and 4. The role of advertising in the purchase process. The presentation of research results is preceded by some reflections on the essence and characteristics of manipulation.

The essence and characteristics of manipulation

Manipulation is a common phenomenon in our political, social, professional and personal life. It is a form of influencing individuals, social groups and societies. It is present in politics, the world of media and education. It expresses a specific character of social and professional relationships (Cialdini, 2008). It is key to explaining and evaluating specific forms and strategies of communication

at all levels of social relationships. Information manipulation has always been used to influence human behaviour in all its dimensions, and it is very likely to perform this function in the future (Pratkanis, Aronson 2001). The manner of exercising public power (divide /inform/ and rule), the scope of the freedom of media and the forms of controlling the means of social communication constitute a significant component of the barometer and transparency of social communication and the development of the information society (Castells, 2009; Barney, 2004), the network society (Skinner, 2018), or, in a broader sense, the quality of social life. This general statement is confirmed by the development of online social communication. „Many to many" communication (Hoffman, Novak, 1996), the lack of borders and censorship as well as the possibility to express views and opinions can be treated as *signum temporis* of the contemporary world of social communication. The period in which we live will certainly be the subject of in-depth and unbiased assessments from the perspective of communication and information, and, certainly, from the point of view of disinformation and manipulation.

Manipulation as such is the area of interest of such fields as sociology, psychology, political science and social communication. Each of these disciplines contributes to the exploration and assessment of the „world of manipulation" (the title of bishop Lepa's book – Lepa, 2008) and describes the mechanism of „the power of communication" (Castells, 2009).

Manipulation as a method of influencing individuals or social groups consists in hiding the real intentions of a perpetrator – the sender of information, the exploitation of a recipient's incomplete knowledge and lack of awareness, hiding the actual action through distracting attention from the sender of information, deception, fragmentation of information, the exploitation of a recipient's weaknesses, as well as creating conditions for such actions (O'Keefe,1990; Dillard, Shen, 2002; Gass, Seiter, 2015; Doliński, 2005).

In a broader perspective of social steering, manipulation is a planned action aimed to achieve a sender's goals and interest; it is based on relatively permanent principles of influencing the social environment and its subordination (Cialdini, 2008; Tokarz, 2010; Perloff, 2020).

We can deal with such situations in the world of marketing and advertising (Danciu, 2014). Is it really the case? The paper offers a cautious answer to the question whether, and to what degree, advertising provides transparent information about sales offerings, or whether, and to what degree, it is a form of social manipulation. This question relates to two issues: firstly, the role of advertising as a company's main form of expressing market messages, and, secondly, the lack of broad research into the manipulative character of advertising and its actual impact on recipients' behaviour and the mechanism of affecting consumers' market decisions through advertising messages – advertising content, the character and form of information, creation strategies and the organisation of media space. The abovementioned elements are the „marketing details" of the world of advertising, but they play a significant role in exploring the mechanisms of impact on consumers' behaviour and market decisions. Such decisions are not only „the acts of purchase", but they constitute a process characterised by specific conditions and, quite frequently, long duration.

Advertising is a peculiar form of communicating information (Rodgers, Thorson, 2012; Bruhn, 2013; Eagle et al., 2014; Falkeimer, Heide, 2018; Kotler, Keller, 2018). It is an encoded, considerably shortened, simplified and asymmetric form of communication. It presents a unique value of sales, it arouses interest, encourages and excites. Advertising creative strategies themselves represent an interesting area for research on relationships between art, aesthetics and the primitive character of encouragement, argumentation, persuasion and, finally, manipulation.

Advertising informs and persuades. It does it in a continuous manner and with the intention to hit fertile ground in the right place at the right time for the encounter with readers, listeners, viewers or internet users. It implies that advertising messages can reach recipients (consumers) at any stage of the buying decision process and market behaviour in a continuous manner.

A company undertakes promotion activities for obvious reasons – to achieve such objectives as sales promotion and activation, customer acquisition, an increased market share, defeating market rivals and increased mid – and long-term corporate value. Generally, the contemporary market is a market of excessive supply in practically all economic sectors. This type of supply is referred to as manipulative supply, which encourages continuous marketing communication, including controversial or even aggressive advertising campaigns. The conditions of excessive supply confront companies with „information abuse temptation" – the term proposed by Marks and Spencer, who extended information asymmetry theory developed by G.A. Akerlof, a Nobel Prize winner in economics (2001, awarded jointly to M. Spence and J. Stieglitz for the work on information asymmetry and its impact on market mechanism – Akerlof, Shiller, 2015; Barkley Roser, 2003; Garbe, 2017).

Consumers, in turn, enter the world of advertising to find information enabling them to solve their buying problem. Indeed, the objective of advertising is to provide information, as well as to shape specific behaviour. Behaviour is affected at all stages of the purchase process, and even earlier – it should be noted here that arousing excessive needs is one of the most controversial activities of contemporary marketing. When this objective is achieved, a company finds it much easier to acquire a customer. The emotional aspect of consumer behaviour constitutes a platform for an „advertising game" and the willingness to enter the world of advertising.

Effects of advertising, its content and form, as well as the character of messages are diversified. They can be both positive and negative. For the purpose of this paper, we analyse them briefly referring to information asymmetry and adverse selection in the context of consumer behaviour manipulation.

Respondents' digital competences and the forms of presence in the digital world

A starting point for the analysis of respondents' profile constituted digital competences of young Internet users. There are numerous research studies in this area, and this issue has been systematically explored for many years at an international level. Let us stress the major characteristics of the analysed sample. Nearly all students in 13 analysed countries use the web on a daily basis, and practically all the time – we received such responses from more than 90% of young Internet users. Approx. 90% of them use laptops and mobile devices, and have their accounts in social media. They use them „several times a day" or practically „all the time". Nearly half of the respondents (48%) shop online at least once a year.

Most respondents express the opinion that „access to the Internet is indispensable to performing daily educational and professional tasks (85% of responses), as well as to maintaining contacts with friends. It should be noted that answers were similar regardless of respondents' country of origin.

A special role in the research was played by an assessment of students' digital competences – not in terms of programming and IT technologies but the knowledge about issues related to online advertising. We regarded this issue to be significant from the point of view of the consistency between responses and the nature of the analysed problem: digital competences and the extent and forms of manipulating e-consumers' behaviour by online advertising. The acquired knowledge can be referred to four elements of online advertising: retargeting, contextual targeting, personalisation of newsletters, and the knowledge about the CRO process, as well as two general but significant issues: the essence and significance of cookie files and the knowledge about the Cambridge Analytica scandal.

Without going into detail, we assumed a'priori that the analysed group would have good knowledge of these issues. Generally, (N=955) students demonstrate a diversified and relatively low level of digital competences expressed by the knowledge of specific categories of online advertising. In the group of foreign students, 36% of the respondents gave correct answers to the question: what is retargeting? Polish students performed much better – the question was answered correctly by nearly 70% of the respondents. With regard to cookie files – 48% of the foreign students and 85% of Poles answered the question correctly. The knowledge of the remaining elements of digital competences was similar. Merely 21% of all the respondents had knowledge about Cambridge Analytica – a spectacular global scandal caused by a leak of personal data from Facebook. However, the distribution of answers varies at an international level. For example, the knowledge of the Japanese students about Cambridge Analitica was visibly lower than the knowledge of the Polish students. It is surprising in the context of a considerable difference between the Japanese and Polish society in terms of the advancement of digital transformation (*International …*, 2018).

The results themselves are interesting, and they also contribute to the analysis of manipulation in online advertising. Each of the elements related to digital competences can be referred to the possible impact (hidden or not) of online advertising on Internet users – e-consumers. It can facilitate tracking consumers' online behaviour, the paths of their activity and entries, and, consequently, provides technological opportunities for finding „expected" and sought-after information – seemingly unbiased but based on specific IT technologies and algorithms.

The reliability of sources of information in the context of online advertising

The starting point for analysing manipulation in advertising was determining the reliability of particular sources of commercial messages. This problem relates to a broader and fundamental aspect of debates over social manipulation – an assessment of the reliability of media as a basic platform of communication. This is a significant issue, but it goes beyond the main theme of our considerations. Its concretisation required the entry into the world of media (the forms of online advertising) to prevent reducing the term „media" to the Internet. The media make use of diversified forms of communication including technical and impersonal messages as well as strongly personalised content. Their common characteristic is the fundamental mission of the media – the transmission of specific information. Each of them performs this function, constituting a specific source of advertising information communicated in the web space. It also provides opportunities for influencing Internet users. The reliability of a source of information is the first step and the basic platform for exerting effective influence on users' market behaviour from the first stage of the process – creating consumer needs. The results of our research indicate that the reliability of the particular online sources of commercial information is assessed in different ways. In the opinion of the Japanese students, the most reliable sources of information include product or brand websites (55% of responses), friends' opinions in social media (54%), and other Internet users' opinions (49%). According to the Polish students (the sum of evaluations 4 and 5: reliable and fully reliable), reliable sources of information include friends' opinions in social media (77%) and Internet users' online opinions (72%). Also, 60% of the respondents have confidence in official websites. The least reliable sources of information (evaluation 1 in a 1–5 scale) include celebrities' opinions, banner ads and influencers' opinions. This structure of responses is significant as such and also crucial from the perspective of participants of the marketing communication process – advertisers and advertisees. A negative assessment of the reliability of sources of information is correlated with the effectiveness of advertising campaigns and their persuasive impact on advertisees. It should be stressed that great confidence is given to online opinions – young people, independently of their nationality, regard other internet users' recommendations and reviews as the most reliable sources of information.

Similarities and differences in the perception of online advertising — an international perspective

Advertising is a sociocultural phenomenon. It has specific functions, tools, significance, the ways of encoding sales messages and strategies for influencing recipients. International research on the social perception of advertising points to a clearly identified set of basic functions of advertising. Research studies in this area are conducted worldwide by social and marketing research agencies. Generally, the results of research reflect a negative social attitude to advertising as a social and cultural phenomenon, as well as to its intensity and presence in the media. A controversial, sometimes aggressive style of advertising which questions the basic values of social life or religion on the one hand and idealises, infantilises and creates a „virtual reality on the other hand, is the subject of much social criticism. For these and other reasons advertising is subject to various forms of regulation including laws on advertising or advertising codes created by the world of advertising and marketing communication (e.g. IAB). Similar measures – functions and meanings are adopted in our project. In the opinion of Polish and foreign students, advertising is an indispensable element of a company's presence on the markets, but is not a reliable source of information. It is a common conviction among all the surveyed students that advertising makes people buy products that they do not really need. Despite a clearly declared negative attitude to advertising, both Polish and foreign students are quite willing to disclose their personal data in return for discounts and promotion prices (Figure 2). However, the distribution of responses points to differences between the Polish and Japanese students: Poles are more inclined to disclose their personal data to advertisers in return for discounts (46% of the Polish students and 25% of the Japanese students, respectively). This difference is statistically significant (chi ^ 2 of Pearson $p < 0.05$).

A significant element of the research was an analysis of respondents' emotional attitude to the particular forms of online advertising. We made an important assumption that this attitude reflects the actual impact of advertising on buying decisions. The students, regardless of the country of origin, give the highest ratings to personalised newsletters (33%) and influencer profile ads (30%). The lowest ratings are given to ads in web browsers (52%), on Facebook (38%) and YouTube (54%). However, most international students take a neutral position about this issue.

The analysis of this problem was supplemented by an exploration regarding the extent to which selected characteristics of online advertising are socially accepted. Out of 11 specific issues included in the survey questionnaire, several problems deserve special attention in the context of the manipulative character of advertising. Half of the Polish respondents confirmed having a sense of being manipulated by online advertising (51%). The foreign respondents' opinions were similar – 46% of students from 12 countries. Interestingly, the Japanese responses were below the international average (38%). Young people are aware of leaving traces on the Internet that could be used to manipulate their behaviour in the future (80% of Polish and 54% of foreign responses). Students give „no" answer to the question about advertisers' information advantage over consumers – 33% of Poles do not agree with this statement, and 29% of them do not express any opinion. The students from foreign universities held a different view – 49% of them admitted that advertising may have an information advantage. These results make a significant contribution to a dispute over manipulation in advertising. The survey results lead to an

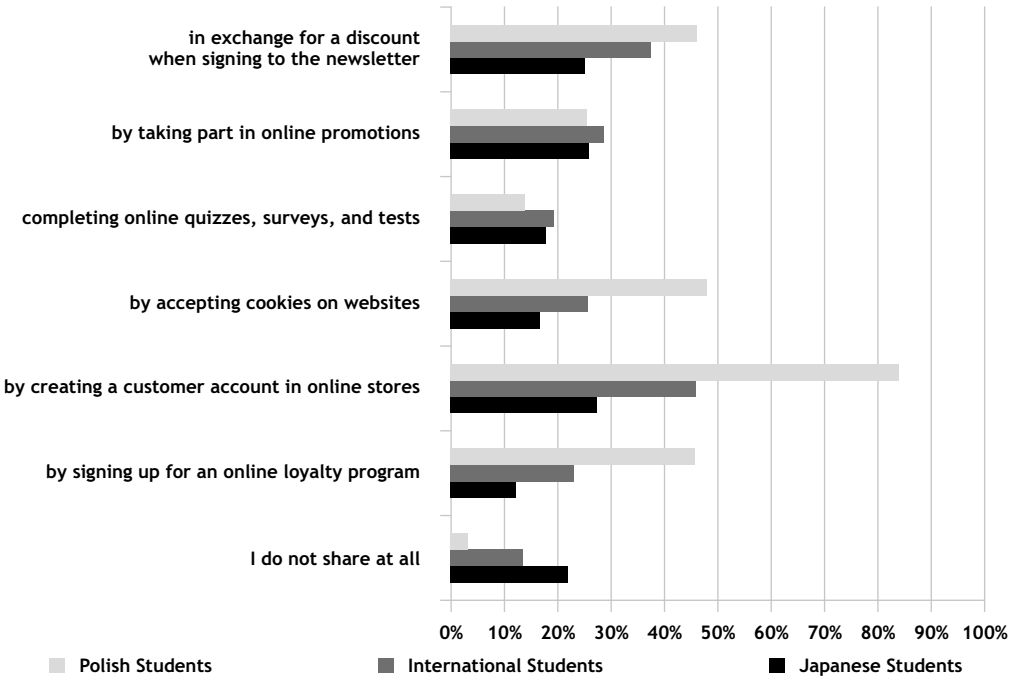

Figure 2. Distribution of responses points referring to the willingness to disclose personal data
Source: own research

important conclusion: the world of information technology creates specific tools which are used by companies to influence Internet users. Companies do it in a hidden and non-transparent manner, accompanied by a flexible organisation of online campaigns and keeping up the appearances of users' independent decisions by insinuating their potential, knowledge, competences and skills in the process of reaching specific information. Such actions are enhanced by gamification strategies, various forms of brand promotion in social media or creating brand-fan groups. In can be inferred from the research results that a crucial role in influencing users is played by a „system of rewards" offered by companies in return for disclosing Internet users' personal data. Obviously, a customer information database in a given market segment represents a great business value. Companies promise a wide range of benefits including participation in online competitions and promotions, quizzes, surveys, online psychotests, cookie consent, online shop accounts, benefits of loyalty programmes etc. All these elements are part of the essence of social manipulation.

Conclusions

The paper presents the results of the research on manipulation in advertising in an international environment. The study focuses on organisational and methodical as well as exploratory and cognitive aspects of this issue. The former aspect refers to the specific problems of the organisation and research methodology at an international level.

The second aspect relates to the selected research results concerning international young consumers' views on the functions, significance, and character of online advertising. The research sample was relatively homogenous – students of economics, management, business, and marketing from 13 countries – enabling us to conduct a preliminary analysis of the problem and obtain interesting cognitive results. The general conclusion is that in light of the opinions of 955 students from 13 countries, online advertising contains visible elements of manipulation. This conclusion, however, due to the selection of the sample and diversified N values in the respective countries should be treated with some reservations resulting from the necessity to adhere to research methodical standards.

The results of the research, despite their natural limitations, have some value for practice – for business: enterprises, advertising broadcasters, advertising agencies, for the media. They have a specific significance for consumers, addressees of advertising by making them aware of the possibility of manipulating advertising through various forms of influence, and persuasion. There can also be necessary to create transparent advertising laws, advertising codes of ethics, and the advertising industry's self-regulatory codes.

Currently, internationalisation constitutes a paradigm of research in management. Undertaking research at an international level is an objective necessity, a challenge and an opportunity for gaining the knowledge of actual and complex problems in a transnational and global dimension and in the perspective of the versatility created by the contemporary world – a „global village" (McLuhan, 1962). Research studies in management at an international level require finding solutions to organisational issues. The basic elements of their morphology, characteristics, and specificity in the context of the title problem are presented in this paper.

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Endnote

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Organizacyjne aspekty badań nad manipulacją w reklamie w środowisku międzynarodowym

Streszczenie

Podejmowanie badań w perspektywie międzynarodowej jest obiektywną koniecznością, wyzwaniem i szansą poznania rzeczywistych i złożonych problemów zarządzania w skali ponadnarodowej i globalnej, w perspektywie różnorodności, jaką stwarza współczesny świat – „globalna wioska". W badaniach w wymiarze międzynarodowym istotną kwestię do rozwiązania stanowią aspekty organizacyjne. Podstawowe elementy ich morfologii, cechy i specyfikę, w aspekcie konkretnego, tytułowego problemu, przedstawiono w niniejszym artykule. Jego struktura obejmuje dwa nurty: organizacyjno-metodyczny oraz eksploracyjno-poznawczy. W pierwszym wskazano na specyficzne problemy organizacji i metodyki badań w perspektywie międzynarodowej. W drugim zaprezentowano wybrane rezultaty badań dotyczące spojrzenia młodych konsumentów z różnych krajów na funkcje reklamy online, jej znaczenie i charakter. Badania zrealizowane na stosunkowo homogenicznej próbie – 955 studentów ekonomii, zarządzania, biznesu i marketingu w 13 państwach – pozwoliły na wstępne rozpoznanie problemu i uzyskanie interesujących poznawczo wyników. Sprowadzono je w tym miejscu do konkluzji, że w świetle opinii blisko 1000 studentów z 13 krajów reklama online zawiera wyraźne elementy manipulacji. Wniosek ten, ze względu na sposób doboru próby, zróżnicowanie N w każdym kraju, został sformułowany jednak z dużą ostrożnością, która wynika z potrzeby przestrzegania standardów metodycznych badań naukowych.

Słowa kluczowe

organizacja, badania międzynarodowe, manipulacja, reklama

TOWARDS THE SOCIOCRATIC ORGANIZATION MODEL

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Introduction

Significant changes have been observed in the approach to organization management over the last twenty years. What happens is a systematic departure from hierarchical structures, increased flexibility of operations, delegation of authority, development of employees' initiative, importance attached to values. These solutions involve different management concepts which are being created in business practice. The most important of them include: agile manufacturing, process management, teal organization, knowledge management, lean management. A common feature of the aforementioned concepts is the key role of human resources and operational flexibility. Most contemporary management concepts that refer to these assumptions utilise various elements of self-organization. The change happening in this respect points to a transformation of contemporary organizations towards a new model, which is often defined as sociocratic. The main thesis of the article is the statement: the contemporary organization's management model evolves towards sociocracy. The aim of the article is to present the development of the discussed approach in the last twenty years against the background of other, related management concepts. The analysis has been based on bibliometric research. The article also presents the genesis and essence of the sociocratic organization. Opportunities and threats related to the dissemination of this model have also been discussed in it.

Genesis and essence of sociocracy

The term „sociocracy" literally means the „rule of companions". The term was created as a result of merging the words „socius" (from Latin), meaning „companion, friend", and „krátos" (from Greek), meaning „strength, violence" (*Słownik Wyrazów Obcych*, 2002).

The genesis of the idea of sociocracy is quite old. This term was used for the first time in 1851 by the French philosopher August Comte, the creator of positivism and sociology. He referred this term to his concept of ruling, whereby the power would be entrusted to experts (whom he called „sociologists"), who would be using scientific methods. In his opinion, such a governance model would contribute to better satisfaction of people's needs than in the case of majority governments (Buck, Endenburg, 2012, p. 4). A successor of August Comte's idea was the American sociologist Lester Frank Ward, who defined sociocracy as a higher form of governance as compared to democracy. This results from replacing the emotional and partisan nature of democratic governments with a more effective, unemotional, and scientific discussion over problems (Chriss, 2006, p. 15).

However, the popularisation of the sociocracy idea in management is attributed to Gerard Edenburg, a Dutch entrepreneur, who, in the 1970s developed and implemented the method of sociocratic organizational circles in his company (*The Sociocratic Circle Organization Method – SCM*) (Romme, 1995, p. 213).

A direct inspiration for Endenburg was experience of the Dutch pedagogue – reformer, Cornelis (Kees) Boeke. In 1926 he established a school with a dormitory, where he applied a sociocracy-based management model. The employees and school students were treated as equal partners in the school management process. All the decisions were made on the principle of consent. This allowed school students' creativity and commitment to be developed, as a result increasing the effectiveness of the education process (Buck, Villines, 2007, p. 191). It is also worth noting that Gerard Endenburg was this school's student.

Developed in the 1970s by Gerard Endenburg, the sociocratic circles method (SCM), which he implemented in his company Edenburg Elektrotechniek, was integrating Boeke's sociocracy with engineering and cybernetics. This concept contributed to increased satisfaction of the employees, their higher identification with the company and resulted in a higher quality of the services provided (Romme, Reijmer, 1996). However, the idea of sociocratic organization was broadly popularised no sooner than in 2000, thanks to a book by Sharon Villines and John Buck „We the People" (Buck, Villines, 2007). This book, originally published in English, has also been translated into other languages, contributing to the sociocratic organization idea being disseminated in many countries.

Presently, the popularisation of the sociocracy concept in management can be attributed, to a significant extent, to three consultants: James Priest, Bernhard Bockelbrink and Liliana David, who, in March 2015, opened a website called Sociocracy 3.0., containing a collection of educational resources, explaining the principles of implementing sociocratic management. These resources are made available under a Creative Commons Free Culture license (Bockelbrink et al., 2020).

The assumptions of sociocracy have also been used in the holacracy concept developed by B. Robertson, the owner of an IT company Ternary Software from Pennsylvania. It may be assumed that holacracy constitutes its elaboration and formalisation. Presently, B. Robertson is the owner of a consulting company HolacracyOne, dealing with holacracy implementation in business (Krasulja et al., 2016, p. 191; Robertson, 2015).

Principles of sociocratic organization

The sociocratic organization concept is based on four main elements:

- collective decision making on the basis of „consent",
- organizational structure in the form of autonomous circles,
- double linked circles,
- variability of employees' roles (Eckstein, 2016, p. 1).

In the sociocratic organization model, decisions are made collectively, on the principle of consent. Both current affairs and directions of strategic activities are subject to team discussion. All the participants in such discussion can report proposed solutions. The solution being implemented is the one against which the meeting participants do not report any constructive objections, namely are not able to present a better proposal. Such a solution is deemed approved by all. This approach is better than the compromise-based one. Achieving a compromise normally requires resignation from some of the expectations by each of the parties. The solution obtained in this way is not optimal from the point of view of the organization. It solely serves satisfaction of the needs of specific groups (Romme, 1996, p. 70).

Decisions made on the principle of consent are often mistaken with consensus. However, consensus requires acceptance of a specific solution by all. In the conditions of the organization, such a situation is very difficult and often almost impossible to achieve.

The second element of sociocracy is replacement of the hierarchical structure with autonomous groups, referred to as „circles". The smallest circles are formed by employees with different competences, who have assigned roles. These circles are elements of larger wholes – superior circles (circles of departments, divisions, or the circle of the entire organization). Circles are created as necessary. Some circles are permanent, on the other hand, some exist only until the goal assumed when they were created has been achieved. Circles in sociocracy are autonomous with regard to the objectives and tasks assigned to them. All decisions within the circle are made collectively during meetings held on a regular basis. Any operations of the circles are performed in three stages: leading, implementation, measurement. The circles are „double linked". Two persons from the lower circle are at the same time members of the lower circle. These are: the person responsible for controlling the performance of the lower circle and a representative of the lower circle. The person supervising the performance of the lower circle is appointed by the higher circle, on the other hand, the second member is appointed by the lower circle. This solution ensures the lower circle's possibility to influence decisions of the higher circle as well as control performance of the lower circle (Romme, 1998, p. 160) (Figure 1).

Within the circle the employees perform specific roles, which are assigned to them by the team (circle participants), depending on their individual competences. There is no boss. An employee can perform several roles at the same time (Eckstein, Buck, 2018, p. 35–38).

The presented solutions allow for the achievement of seven primary principles of the sociocratic organization:

- effectiveness – devoting time only to what brings the organization closer to achieving the assumed goals;
- consent – taking actions against which there is no constructive objection. No such objection is treated as acceptance for the action;
- empiricism – verifying assumptions in action;
- continuous improvement – continuous improvement on the basis of conclusions from practice;
- equivalence – ensuring each employee's real influence on the organization, regardless of the role served;
- transparency – information openness. Informing the employees about all the actions and decisions concerning the organization. Limitations in this regard are only concerned with confidential matters;
- accountability – responsibility of all the employees for their activities and for the whole organization and its development. Expecting that the employees will respond in any disturbing situation, not only in matters that relate to them directly (Bockelbrink et al., 2020).

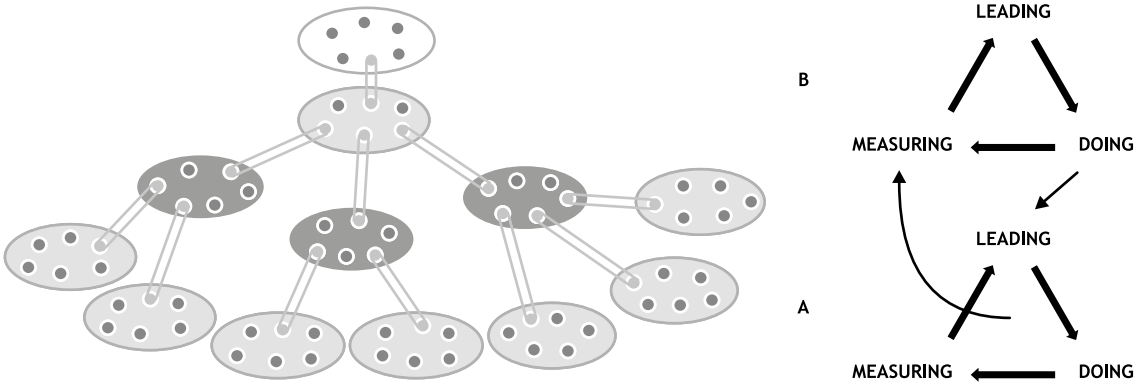

Figure 1. Double-linked organizational structure
Source: based on: Romme, 1995; Buck, Villines, 2007

The implementation of the presented principles requires an organization to be significantly formalised. Usually, it is achieved by creating detailed internal regulations, often defined as the organization's constitution. They describe the method of making decisions, allocating the roles as well as the way of conduct in untypical situations. Over time, when the management model is consolidated in the organization, such regulations cease to play a critical role.

Sociocracy as compared to other management concepts

The assumptions of sociocracy are consistent with multiple contemporary, recently developed management concepts. The most important of them include: agile project management and teal organization. Under these concepts, many detailed methodical solutions have been created, such as: scrum, podularity model, parallel teams or web of individual contracting which also utilise the assumptions of sociocracy. To a significant extent, the sociocracy idea corresponds to Jidoka, which is the tool of Lean Management.

Agile project management consists in a departure from the traditional scheme of cascade action and its substitution by an incremental performance, based on the current interaction with the customer. In the agile approach there is no action plan. What is only known is the overall goal, the achievement of which is the aim of the team or teams involved in performing the project. Decomposition of the goal into partial ones as well as task division and work organization are subject to team members' decisions. Leadership in the team is changing and depends on the task that is being performed. The team members independently set each other tasks to be performed, and mutually settle their work. A very important element in teamwork is direct, daily communication, in the form of a meeting summing up the achievements and determining further goals. The main assumptions for action under these conditions are: people and interactions over processes and tools, operating software over comprehensive documentation, cooperation with the customer over formal determinations, responding to changes over action according to the plan (*Manifesto for Agile Software Development*, 2017).

The assumptions of sociocracy have also been used in the teal organization concept. Its authorship is attributed to the Belgian politician – F. Laloux, the author of the book: *Reinventing Organizations*, in which he presented the assumptions of the discussed concept (Laloux, 2015). Laloux presents the teal organization idea as a contemporary phase in the development of organizational systems. He describes these phases using colours. teal organization is the contemporary, most advanced organizational solution, based on self-organization, where, thanks to common values, trust, cooperation, partnership and creating self-realisation opportunities, it is possible to achieve effects which could not have been achieved with the traditional, hierarchical management model (Blikle, 2017, p. 20).

Autonomous teams and collectivism in making decisions are also the main assumptions of Jidoka in Lean Management. This concept consists in delegation of the accountability for processes and their development to their direct performers. However, the teams responsible for particular processes have a high level of autonomy. They decide both about the current process performance as well as changes and improvement. All the decisions are made collectively. The employees are expected to demonstrate a high level of accountability not only for the area which applies to them directly, but also for the whole organization (Ćwiklicki, Walczak, 2009, p. 54).

The presented concepts demonstrate many common features with sociocracy. In particular, they include: autonomous teams, collectivism in making decisions, variable employee roles, open communication, self-management. The sociocracy model, popularised by James Priest, Bernhard Bockelbrink and Liliana David, defined as Sociocracy 3.0, at the same time utilises some elements of „later" concepts, such as: agile management, or Lean Management (Bockelbrink et al., 2020). These concepts should therefore be considered as two-way related, confirming their high mutual dependence.

The literature indicates the following as the main advantages of the sociocratic organization model: promotion of creativity and problem solving in the organization, increased adaptation capability, involving all members of the organization, higher awareness of costs, employee identification with the company and a sense of community, smaller likelihood of professional burnout, development of employees' leadership competences, self-discipline. On the other hand, the limitations of the discussed concept are: necessary careful implementation, fuzzy responsibility, a sense of chaos, formalisation at the initial stage of functioning, intense emotions (Buck, Endenburg, 2012, p. 21).

The sociocratic organization concept in the light of bibliometric studies

Research method

The assessment of development of the sociocracy concept was conducted on the basis of bibliometric studies. The bibliometric study was focused around the term sociocracy and related ones, referring to the related management concepts and methods. They included: holacracy, self-organization as well as: nested teams, parallel teams, web of individual contracting, teal organization, podularity, agile, scrum.

The data for the analysis was collected between 12 and 31 October 2020. Ebsco databases were used as the source of data (access through the Main Library of the University of Economics) and Google Scholar. The study covered the years 2000–2019 (for 2020 there was a visible decrease in the number of publications for all the analysed terms, resulting from the year being unfinished and the fact that not all the works have been already published as well as delays in posting certain publications in the databases). The study was conducted in English.

Two major problems were identified within the analysis of the term self-organization. The first one are two spelling variants of this term in English: self-organization (American English) and self-organisation (British English). The term

„self-organization" was used in the study, as one that is present definitely more often. Similar procedure was applied for the term „teal organization". The second problem is related to the application of the term self-organization in various areas of scientific research, such as e.g.: biology, chemistry, material science etc. In association with the need to sort out only the publications concerning management sciences, it was decided to search only those that have, in their content or bibliographic description, both phrases: „self-organization" and „management" (syntax for Google Scholar search engine: „self-organization" AND management). For any other terms, such problems did not occur.

The study was conducted for the following three sets of terms:

- self-organization (syntax: „self-organization" AND management),
- sociocracy and holacracy (syntax: sociocracy OR holacracy),
- nested teams, parallel teams, web of individual contracting, teal organization, podularity, agile, scrum, sociocracy and holacracy (syntax: „nested teams" OR „parallel teams" OR „web of individual contracting" OR „teal organization" OR podularity OR agile OR scrum OR sociocracy OR holacracy).

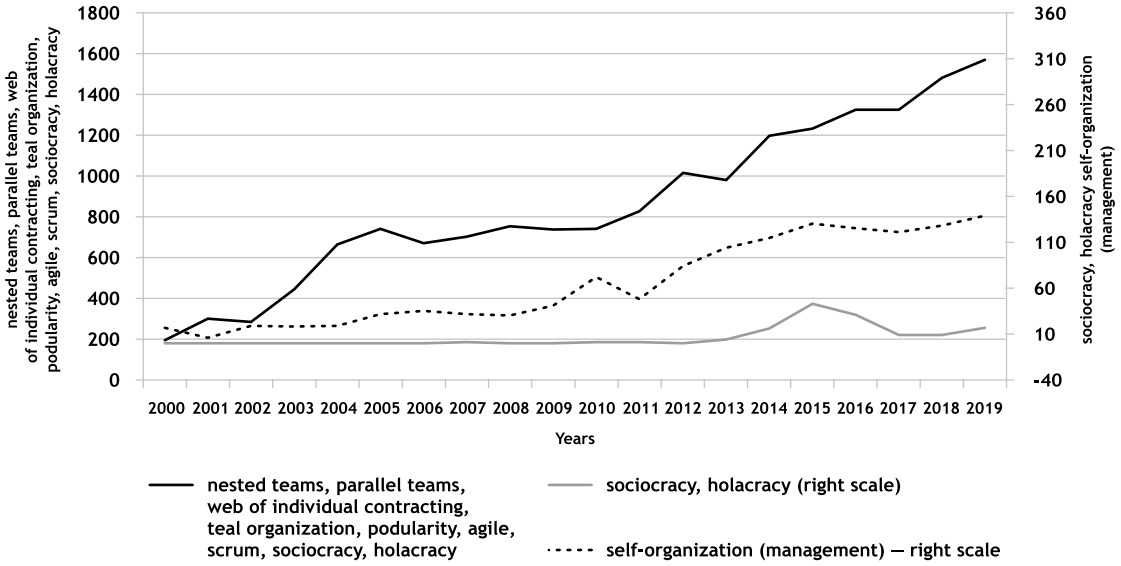

Figure 2. Number of found publications with the phrases: self-organization and management, sociocracy and holacracy and nested teams, parallel teams, web of individual contracting, teal organization, podularity, agile, scrum, sociocracy and holacracy in Ebsco database
Source: own elaboration

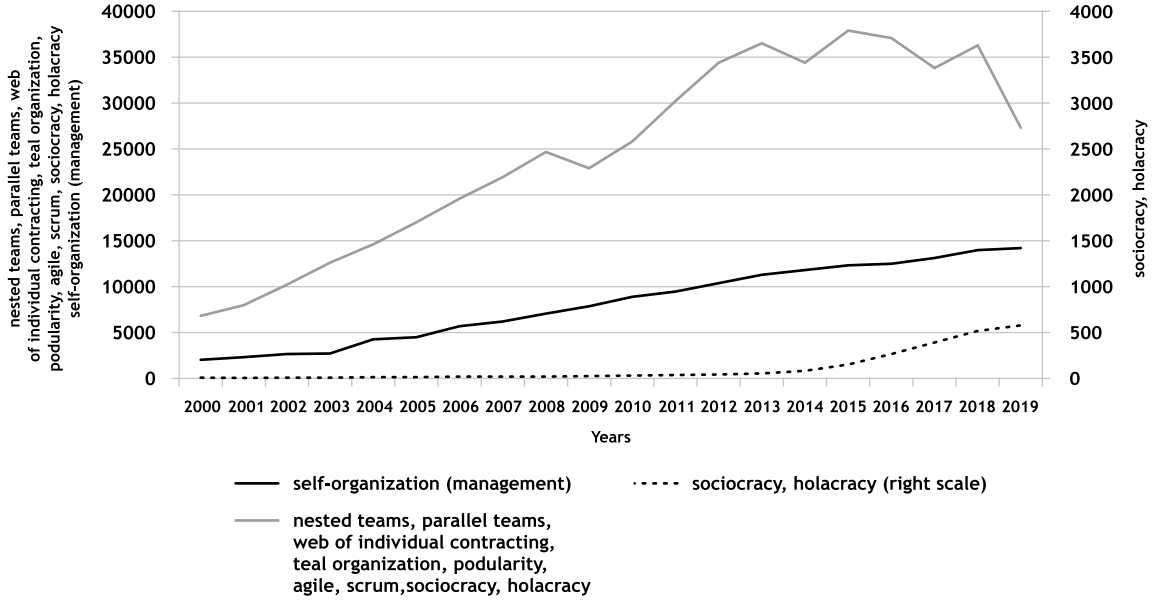

Figure 3. Number of found publications with the phrases: self-organization and management, sociocracy and holacracy and nested teams, parallel teams, web of individual contracting, teal organization, podularity, agile, scrum, sociocracy and holacracy (Google Scholar search engine)
Source: own elaboration

Results

The numbers for particular terms in Ebsco database have been presented in Figure 2.

The presented results of the study indicate a constant growth in the number of scientific publications in the analyzed problem area over the last 20 years. A clear growth in the number of publications for „sociocracy" and „holacracy" could be visible in 2014. The interest in the problem area decreased in 2017. The number of publications which contained both terms „self-organization" and „management" was growing in a linear-like manner until 2014, and then stabilized at the level of approximately 120 a year. The interest in related concepts such as: nested teams, parallel teams, web of individual contracting, teal organization, podularity, agile, scrum was strongly growing in the years 2002–2005, and then, after a period of stabilization, again in the period 2011–2019. The share of the terms „sociocracy" and „holacracy" in these growths should be regarded as marginal (in the analysis, consideration must be given to two scales introduced on the chart in order to increase its readability).

For comparison, the study was repeated with the application of Google Scholar search engine, which should be regarded as more „open" as compared to Ebsco databases. The result has been presented in Figure 3.

In the case of Google Scholar until 2013 the differences of several hundred times were observed between the number of emerging studies containing the phrase self-organization and texts with sociocracy or holacracy (on the graph the right scale relates to the results of self-organization, and the left one to sociocracy and holacracy). Since 2015, in spite of still almost linear growth in publications related to self-organization, there has been a significant growth in publications for the terms sociacracy and holacracy. In the period 2000–2013 the greatest growth in numbers can be observed for publications with the phrases nested teams, parallel teams, web of individual contracting, teal organization, podularity,

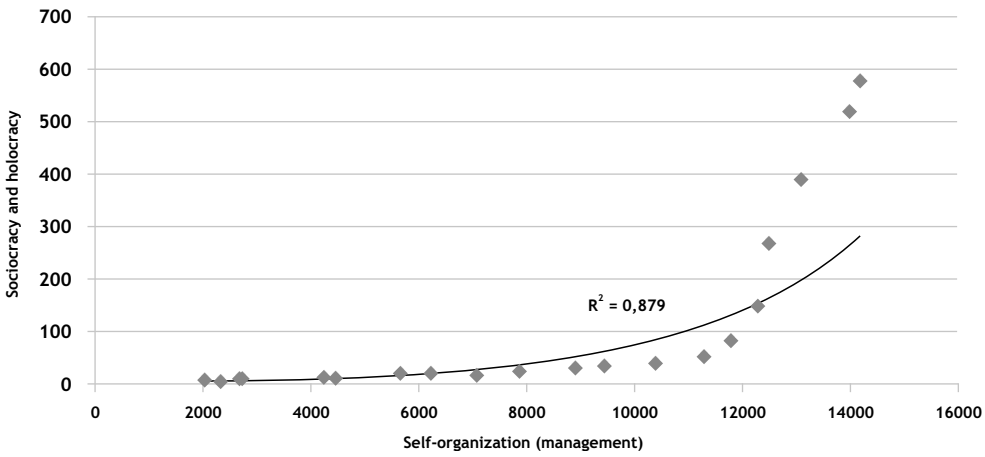

Figure 4. Dependence between the number of publications with the term self-organization and sociocracy and holacracy
Source: own elaboration

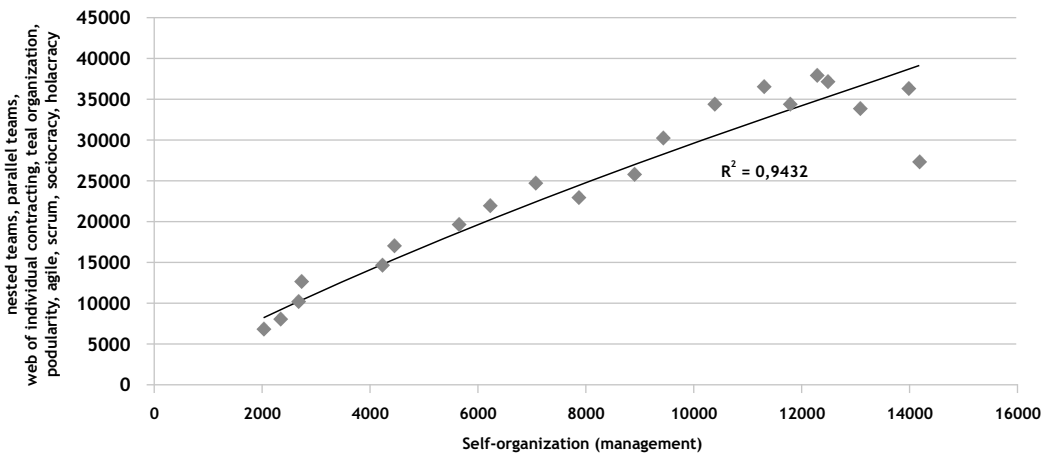

Figure 5. Dependence between the number of publications with the term self-organization and nested teams, parallel teams, web of individual contracting, teal organization, podularity, agile, scrum, sociocracy and holacracy
Source: own elaboration

Figure 6. Word cloud based on sociocracy term search headers
Source: prepared by the authors with the use of Google search engine and wordart.com application

agile, scrum, sociocracy and holacracy. Then, there was a clear stabilization with a decreasing trend in the years 2018 and 2019 (in spite of the growth in interest in the sociocracy and holacracy subject area visible then). Analyzing the chart it should be borne in mind that two scales have been applied, in order to increase readability of the presented data.

Figure 4 is an attempt to determine the dependence between the number of publications concerning self-organization and sociocracy and holacracy.

The function with the best match (highest R determination coefficient value) is the exponential function ($y=2.8839e^{0.0003x}$).

A similar study was conducted for self-organization and nested teams, parallel teams, web of individual contracting, teal organization, podularity, agile, scrum, sociocracy and holacracy. In this case the dependence between the studied numbers is best described by the power function ($y=18.241x^{0.8023}$) (Figure 5).

The last bibliographic study was intended to identify the phrases with which the term sociocracy co-exists online most frequently. To this end, Google search engine and the so-called word cloud was utilized. A sample made of approx. 200 search result headers was imported to an application generating a figure presenting the most frequently repeated words. As a result of filtering, numbers, accidental words and words with fewer than 10 repetitions were rejected. The obtained result has been presented in Figure 6.

Table 1 shows the terms present in the context of the phrase „sociocracy" that occurred most frequently in the sample (more than 50 times).

The type and the frequency of the words suggest that in online resources sociocracy is associated with numerous characteristics attributed to contemporary management concepts and methods.

Table 1. Frequency of presence of the terms associated with the term sociacracy

Term	Frequency of presence	Term	Frequency of presence
Agile	102	Patterns	57
Govern	90	Software	56
Organize	84	Personal	56
Collaborate	78	Sociocrat	55
Make	65	Scrum	54
Decision	61	Teal organization	54
Team	61	Diversity	53
Watch	61	Kanban	53
Lean	59	Growth	53
Leadership	58	Craftmanship	53

Source: own elaboration

Conclusions

The completed bibliometric studies and literature analysis confirm a great interest, over the last 20 years, in management concepts utilizing the assumptions of the sociocratic organization model. The number of publications from this area has been growing systematically in the analyzed period. This applies both to scientific works that can be found in Ebsco database as well as popular-scientific publications, dominant in Google Scholar database. The differences existing in this case to the advantage of Google Scholar database can be interpreted by the still initial phase in the development of this concept. However, it should be expected that a high interest of business

practice, expressed by a large number of „non-scientific" publications, will be reflected in the development of scientific research in this area. An intense development of the concept is also confirmed by a large number of publications devoted to related approaches. A high correlation between the growth in the number of publications concerning sociocracy and concerning other concepts is also worth recording. This can be interpreted as an expression of the present linkage and a growth in the general trend. Therefore, based on the conducted bibliometric research results it can be concluded that the popularity of the sociocratic management model is increasing, and concepts and methods are being developed in this area.

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W kierunku socjokratycznego modelu organizacji

Streszczenie

Artykuł dotyczy koncepcji socjokratycznej organizacji. Główną tezą artykułu jest stwierdzenie, że model zarządzania współczesnymi organizacjami ewoluuje w kierunku socjokracji. W artykule przedstawiona została geneza oraz istota organizacji socjokratycznej. Omówiono elementy oraz założenia organizacji socjokratycznej: kolektywne podejmowanie decyzji na podstawie „zgody", strukturę organizacyjną w formie autonomicznych kręgów, podwójne połączenie kręgów, zmienność ról pracowników. Scharakteryzowano również koncepcje pokrewne, jak: zwinne zarządzanie, turkusowa organizacja, jidoka. Dyskusji poddano także szanse oraz zagrożenia związane z upowszechnianiem się tego modelu. Weryfikację przedstawionej w artykule tezy przeprowadzono na podstawie badań bibliometrycznych dotyczących rozwoju publikacji poświęconych omawianej koncepcji. Badaniu poddano liczebność publikacji oraz korelację z publikacjami omawiającymi pokrewne koncepcje. Przeprowadzone badania potwierdziły, że popularność modelu socjokratycznego zarządzania wzrasta oraz następuje rozwój koncepcji i metod w tym obszarze.

Słowa kluczowe

socjokracja, holakracja, organizacja turkusowa, samozarządzanie

SELECTED ASPECTS OF THE CO-EVOLUTION OF THE POLISH ENTREPRENEURIAL ECOSYSTEM

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Introduction

The concept of ecosystem has its origin in biology, referring to the natural environment and its elements like biotic factors and abiotic factors, which function together as a unit. The concept of ecosystem was adopted, from a business organisational point of view by Moore in 1993, with specific reference to business networks (Nicotra et al., 2018). The concept of entrepreneurial ecosystem consists of two terms: 'entrepreneurial' which is linked to entrepreneurship, which is often understood as a driver of innovation, productivity, sustainable economic growth, and 'ecosystem' generally defined as a system, or a group of interconnected elements, formed by the interaction of a community of organisms with their environment. The purpose of this publication is to determine the overall condition of the Polish entrepreneurial ecosystem and attempt to identify selected co-evolutionary aspects of ecosystem. The research questions are: what is the overall condition of the Polish entrepreneurial ecosystem and what changes in the entrepreneurial ecosystem have affected the current condition of the ecosystem? The presented assessment of the changes taking place and their impact on the entrepreneurial ecosystem, serves to formulate conclusions and identify opportunities for further development of the ecosystem. Entrepreneurship as a driver of innovation, productivity and sustainable economic growth leads to creation of new jobs including a strong component of knowledge and technique. Therefore, the stimulation and support of entrepreneurship and development is imperative to ensure economic growth. Healthy ecosystems are characterised by greater durability (robustness) and have a positive impact on management of enterprise development. There is an increasing number of publications on entrepreneurial ecosystems in the literature, but there is still a lack of indications on the genesis of ecosystem development, its key elements as well as the conditions for further development relating to the analysis of specific ecosystems at a regional or national level. The article presents an overview and is an introduction to further research on the Polish entrepreneurial ecosystem. The presented indexes and aspects of ecosystem co-evolution have been selected from literature review and authors' analysis.

Entrepreneurial ecosystem

Institutional and macroeconomic conditions, structural reforms, supported by social partners, combined with government policies that provide more financial and non-financial support for entrepreneurs and SMEs, are essential for a productive business environment, for increased employment, investment and trade (Altomonte, Békés, 2016, p. 1).

The ecosystems approach is different from industrial districts, clusters and innovation systems concepts because it focuses on entrepreneurs and start-ups as unique organisational entities with different capabilities and resources and on the role of social and economic contexts surrounding entrepreneurial processes (Nicotra et al., 2018).

Literature on entrepreneurial ecosystems (Feld, 2012; Isenberg, 2011; Spigel, 2017) has provided only long lists of relevant factors (eco-factors) characterising successful entrepreneurial ecosystems and their effect on productive entrepreneurship (eco-output) but has not been sufficiently and holistically studied and clear evidence of cause and effect has not been established (Nicotra et al., 2018).

Isenberg (2011) proposes a model (Figure 1), for entrepreneurial ecosystems that is composed of elements that can be grouped into six domains: a conducive culture; facilitating policies and leadership; availability of dedicated finance; relevant human capital; venture-friendly markets for products, and a wide set of institutional and infrastructural supports.

Spigel (2017) argues that an entrepreneurial ecosystem is composed of 11 cultural, social, and material attributes that provide benefits and resources to entrepreneurs, which are: a supportive culture, a history of entrepreneurship, worker talent, investment capital, networks, mentors and role models, policy and governance, universities, support services, physical infrastructure, and an open market.

Roundy et al. (2018, p. 2) working on entrepreneurial ecosystems, propose three related forces that will influence entrepreneurial ecosystem emergence: intentionality of entrepreneurs, coherence of entrepreneurial activities, and injections of resources. According to their observation EEs are complex adaptive systems that should be analysed through complexity science. They developed a framework for the study of EEs by connecting micro-and macro-level research in entrepreneurship.

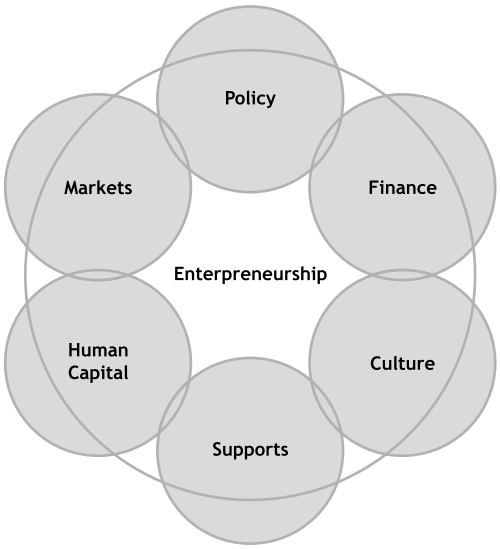

Figure 1. Entrepreneurial ecosystem
Source: own elaboration based on Isenberg, 2011, p. 1

Global Entrepreneurship Index

The GEI is composed of three building blocks or sub-indices: entrepreneurial attitudes, entrepreneurial abilities and entrepreneurial aspirations. These three sub-indices stand on 14 pillars, each of which contains an individual and an institutional variable that corresponds to the micro – and the macro-level aspects of entrepreneurship. These pillars are an attempt to capture the open-ended nature of entrepreneurship (GEI, 2019).

The EE approach differentiates between environmental, ecosystem elements and outcome measures. In this context, the Global Entrepreneurship Index (GEI) has emerged as a relevant EE metric that measures the entrepreneurship system as the complex interactions between entrepreneurial attitudes, abilities and aspirations at country level (Szerb et al., 2019, p. 1309). The ranking includes a comparison of the 137 countries on the Global Entrepreneurship Index.

According to the GEI report, the United States, Switzerland and Canada lead the ranking, while large European countries rank in the middle: France is 14th, Germany is 15th, and Spain is 31st followed by Italy in 36th place (Table 1). While the in the previous year France, and Germany were relatively well balanced over the 14 pillars, Poland, Spain, and Italy were entrepreneurially less efficient. Poland is ranked 29th with a 49.5 score, which is a good result. Hungary changed its position from 50th to the 33rd, primarily driven by the Technology Absorption and the Aspiration index with very strong scores in High-growth Firms, Internationalization and Venture Capital (GEI, 2019).

Poland recorded the weakest result in terms of Competition (0.310), Product Innovation (0.328) and Process Innovation (0.357). The Competition pillar measures the level of the product or market uniqueness of start-ups combined with the market power of existing businesses and business groups. The tendency of companies to innovate is linked to the capacity of technology transfer in a given country and the utilisation of new technologies by start-ups, combined with national research and development expenditure (GEI, 2019). The pillars of Internationalization (0.786) and Start-up Skills (0.809) were rated the best (Table 2). They concern the internationalization of entrepreneurs in a given country and the ability to start entrepreneurial activity. Start-up Skills are also linked to the quality of education.

Table 1. The Global Entrepreneurship Index rank of chosen countries

Global rank	Country	Score
1	United States	86.8
2	Switzerland	82.2
3	Canada	80.4
14	France	67.1
15	Germany	66.7
29	Poland	49.5
31	Spain	46.9
33	Hungary	46.2
36	Italy	45.1

Source: own elaboration based on GEI, 2019

Table 2. GEI, Entrepreneurial Pillar Values for Poland

Pillars	Pillar Values
Competition	0.310
Cultural Support	0.544
Risk Capital	0.492
High Growth	0.455
Human Capital	0.450
Internationalization	0.786
Networking	0.502
Opportunity Perception	0.583
Opportunity Start-up	0.596
Process Innovation	0.357
Product Innovation	0.328
Risk Acceptance	0.540
Start-up Skills	0.809
Technology Absorption	0.623

Source: own elaboration based on GEI, 2019

Regional Entrepreneurship and Development Index

The systemic approach has long been well-established in theory, but part of both theoretical and empirical entrepreneurship research has focused on the individual and the enterprise, ignoring research into the context, in which they are embedded. Entrepreneurs do not act in isolation from their context, which has a decisive influence on who sets up new companies, with what level of

quality and ambition, and with what results (REDI, 2014, p. 5). A systemic approach to understanding the economic potential of entrepreneurship in regions is particularly important for regional policy, as political initiatives usually address gaps and shortcomings at systemic level.

The REDI indicator consists of three sub-indicators, 14 pillars and 28 variables. The index structure combines variables at individual level with institutional variables, to capture contextual influences, making it extremely useful for profiling Regional Entrepreneurship Systems in EU regions (REDI, 2014). The three sub-indicators: attitudes, abilities and aspirations form the entrepreneurship super-index, which we call the Regional Entrepreneurship and Development Indicator (REDI). Each of the fourteen pillars consists of an institutional and individual variable. The REDI Index shows how entrepreneurship is measured in 125 EU regions.

The level of entrepreneurship of Polish regions is consistent with their economic development. The six Polish regions presented in the NUT1 classification are between 86–88th and 105–106th place in the EU REDI ranking (Table 3). The ranking range is based on the REDI index value calculated to one decimal place. Regions with the same REDI value are classified by providing a range in the ranking. Five of the six regions analysed, scored between 36.1–32.3, indicating similarities in these regions. The lower score was achieved only by the Eastern region – 29.2.

The entrepreneurship profile of regions also shows similarities between the regions studied (Table 4). For all regions, the most restrictive in terms of entrepreneurship are the pillars: Opportunity Start-ups, Technology Absorption and Competition, which are part of the Entrepreneurial Abilities sub-pillar. All three pillars are assigned to the policy priorities category at national level (REDI, 2014).

Table 3. The REDI ranking, REDI scores for Poland

Rank	Code	Region	REDI
86–88	PL5	South-West Region	36.1
86–88	PL1	Central Region	36.1
92	PL2	Southern Region	34.1
94	PL6	Northern Region	33.2
96	PL4	North-West Region	32.3
105–106	PL3	Eastern Region	29.2

Source: own elaboration based on REDI, 2014

The presented REDI index is a modified version of the Global Entrepreneurship Index to measure the entrepreneurial performance of 121 EU regions. Following the EE, the adjustment process, i.e., the movement from GEI to REDI, refers to changes in the institutional variables to reflect the regional forces of agglomeration, connectivity and clustering (Szerb et al., 2019, p. 1310). REDI is a more appropriate and more precise measure of EE than GEI. REDI data is available for the years 2007–2014.

Poland's place in the rankings of entrepreneurship indicates a good health of the entrepreneurial ecosystem. Comparing both indexes, Poland performs worse at the regional level than at the national level. The examination of the three sub-indexes demonstrates the varieties of the regions entrepreneurial characteristics. Most Polish regions seem to have a relatively low performance in entrepreneurial aspirations. According to GEI, areas for improvement are the pillars of competition and innovativeness.

Table 4. REDI pillar values – Comparison of Polish regions

Pillars	Central Region	Southern Region	Eastern Region	North-West Region	South-West Region	Northern Region
Competition	0.30	0.21	0.20	0.14	0.20	0.15
Cultural Support	0.32	0.28	0.34	0.27	0.30	0.34
Financing	0.21	0.68	0.21	0.63	0.55	0.64
High Growth	0.76	0.76	0.80	0.67	0.67	0.55
Human Capital	0.38	0.22	0.18	0.17	0.26	0.12
Internationalization	0.79	0.75	0.43	0.65	0.66	0.64
Networking	0.48	0.47	0.46	0.51	0.50	0.47
Opportunity Perception	0.50	0.53	0.43	0.45	0.50	0.50
Opportunity Start-up	0.07	0.06	0.09	0.07	0.12	0.10
Process Innovation	0.44	0.17	0.36	0.40	0.31	0.49
Product Innovation	0.95	0.74	0.46	0.52	0.86	0.57
Risk Acceptance	0.45	0.42	0.40	0.44	0.44	0.45
Start-up Skills	0.65	0.58	0.41	0.57	0.49	0.50
Technology Absorption	0.11	0.19	0.10	0.13	0.17	0.11

Source: own elaboration based on REDI, 2014

Selected aspects of the co-evolution of the Polish entrepreneurial ecosystem

Ecosystems develop naturally through co-evolution, but with different actions we can influence them and try to design them in an intelligent manner. A proper understanding of the nature of the entrepreneurial ecosystem helps in the design process. Ecosystems are usually a result of intelligent evolution, a process that combines the invisible hand of markets and institutional support to ensure (relative) self-sufficiency. There occurs a common evolution of the system, co-evolution, which is the lifeblood of the ecosystem.

A key change in the ecosystem concerned changes in regulation and the system affecting the policy and leadership domain. The transformation after the fall of Communism required a redefinition of the state's role in the economy. The foundation on which Polish capitalism and prosperity were to be built was a set of rules, of the so-called Washington Consensus, which included, among others, deregulation, privatisation, trade liberalisation and free movement of capital (*Strategy* …, 2017). A key change occurred in the Polish business ecosystem, regulatory changes enabled the creation of businesses and the utilisation of emerging market niches. The legal acts provided that the establishing and conduct of business is free and is available for everyone equally, and in the sphere of economic activity everything that is not prohibited by law is permitted (Ustawa, 1988; Ustawa, 1989).

Another significant change affecting the Polish ecosystem was **Poland's accession to the European Union.** The impact of this change affects not only the policy area and leadership, but also the domain of support and markets. The European Union is a community of countries that face many challenges by working together. The effects of the EU enlargement in 2004 can be assessed from different perspectives, including a financial perspective. Newly adopted countries have a possibility to operate within the internal market, which affects their socio-economic situation. The EU Member States pay a certain amount of money to the common budget, which is then distributed e.g. in the form of grants to enterprises, subsidies for important public investments or scientific and educational projects – by the end of 2018 Poland had achieved a positive balance of EUR 107.4 billion, which places Poland first among all EU Member States (Ministerstwo Funduszy i Polityki Regionalnej, 2019). This is an advantageous situation for Poland, as it receives more money from the EU budget than it pays into it. Promoting and supporting the innovative activities of the Member States is one of the main objectives of the European Union's economic policy, in which innovation is regarded as a key competitiveness factor (Brzóska, Cierkosz, 2016, p. 12).

The introduction of an internal audit was a consequence of Poland's accession to the European Union in 2004, and the aim of introducing the institution of internal audit into the public finances was to optimise the management of public funds by identifying risks, irregularities and presenting deviations from adopted criteria, which adversely affect the management of public funds (Emerling, 2015, p. 93). The audit, examining and evaluating the activities of public finance entities, aims to support entities in achieving their objectives by increasing the effectiveness and efficiency of management processes (Waściński, Sławińska, 2013, p. 58). An internal audit is a tool for investigating and evaluating the activities of public organisations to support the organisation in achieving its objectives affecting the efficiency improvements of management processes, and should indicate the possibility of generating a greater result or achieving the same at lower expenditures/costs (Lisiecka, 2012).

Under the culture domain, there occurs a change in the culture of trust. The culture of trust is influenced by the historically accumulated effects of collective experiences from the past of a given society, which can significantly affect individual inclinations to offer trust (Sztompka, 2002, p. 100). Structural factors influencing the culture of trust are normative cohesiveness, transparency of organisations, stability of social order, subordination of power to the rule of law, responsibility of persons and institutions (Sztompka, 2002, p. 318). Societies where high levels of trust and low levels of corruption occur, have better governance, faster economic growth, fairer income redistribution, and citizens show greater respect for the law (Uslaner, 2004).

Transparency International is one of the organisations that deals with the fight against corruption. According to Transparency International, Poland ranks 36th in the international ranking that compares 180 countries, where a country's rank indicates its position relative to the other countries in the index. The score awarded to Poland is 60 points out of 100 possible. A country's or territory's score indicates the perceived level of public sector corruption on a scale from 0 (highly corrupt) to 100 (very clean) (Transparency International, 2018, Poland). More than two-thirds of countries score below 50 in the 2018 Corruption Perceptions Index, with an average score of just 43. Poland maintains a rather stable position: in 2017 it also received 60 points, 62 points in 2016 and 63 points in 2015 (*Transparency International*, 2018, Corruption Perceptions Index).

Adequate **human capital** is crucial for the development of enterprise innovativeness through the creation of high-value-added products and services, which in turn affects the competitiveness of enterprises. From the point of view of the human capital domain, the level of population's education is important, which translates directly into the level of worker skills. In 2011, more than 5.1 million people aged 25–64 had a university degree, of whom about 20% graduated with a bachelor's or engineering degree and about 2% with at least a PhD degree. It follows that in 2011, possessing higher education could be claimed by 2.5 times more Poles than in 1996, and since 2000 the population has grown by an average of 6.6% per year (Kłobuszewska et al., 2012, p. 57). This change is one of the highest in the OECD countries. The data shows that educational achievements are influenced by territorial differences in residence, especially at the level of different administrative regions (voivodships). The educational structure also differs between city and rural residents, but the differences are slowly blurring. Due to the adaptation to the needs of the labour market,

importance is given not only to the level of completed education, but the type of completed studies or the acquired profession. In the academic year 2018/19, 1.230.3000 students studied at universities, which was by 4.8% less than in the previous academic year. Since the academic year 2006/07, there has been a decrease in the number of students due to demographic changes, i.e., an overall decrease in the number of people aged 19–24 (Polish government statistics, 2019, p. 12). The number of university graduates from the academic year 2017/18 was 327,700 and was lower by 15.4% compared to the academic year 2016/17 (Polish government statistics, 2019, p. 12).

The measure of education's universality is the scholarization coefficient. The gross scholarization rate in higher education is the ratio of the number of learners at a given level of education (regardless of age) to the number of citizens in the age group defined as corresponding to this level of teaching (19–24 years). The net coefficient of scholarization in higher education is the ratio of the number of people (aged 19–24) learning at this level of education to the number of citizens in the age group defined as corresponding to this teaching environment (19–24 years) (Polish government statistics, 2019, p. 15).

The gross scholarization rate in higher education in the academic year 2018/19 was 46.2% (Table 5) and the net scholarization rate was 35.6% (0.6 percentage points less than in the previous academic year).

In **the support sphere**, there are many **acceleration programs** that aim to develop entrepreneurship in different areas. The programs have different sources of funding and differ in their scope of action. The main focus of their activity is to support the development of innovative services for business, technological and organisational solutions, as well as to support through consulting and financing for startups interested in implementations in large companies. Examples of such programs are, for example: Entrepreneurial Mazovia program, start-up accelerator Scale-Up by Entrepreneurial Poland, Start-up Heroes platform for new ideas, Start-up Academy. These projects create beneficial opportunities for the creation and development of innovative enterprises. They also work with local governments across Poland, building ecosystems of innovative companies and services to entrepreneurially stimulate local communities. Supporting individuals, local governments and public institutions in the development of local entrepreneurship, they help large companies to implement techniques for innovation and methods for cooperation with start-ups.

The development of entrepreneurship, also means **entrepreneurship incubators,** combined with practical advice on operating businesses. Emerging venture capital funds invest in innovative entrepreneurs using the knowledge and experience of business angels to identify and support business development. Actions to stimulate entrepreneurship also include competitions for the implementation of innovations and competitions for business plans (e.g. Implementation of Innovation by SMEs competition). Their aim is to finance the production of innovative products or the implementation of innovative technological processes in the company, in particular by implementing the results of R&D by SMEs, operating within transregional cooperative links (PARP, 2019).

Operational programs are documents aimed at implementing the National Strategic Reference Framework and absorption of the EU funds. Operational programs may take the form of national operational programs or regional operational programs. The shape and scope of the operational program is approved by the European Commission. Draft programs are drawn up by the ministers of the Member State. Poland uses a number of programs that pursue specific development goals defined by industry or geographically and thematically. Operational programs influence the growth in scale of innovative activities of enterprises in Poland and have a clear impact on R&D. Compared to the period prior to the EU financing, the number of beneficiaries who undertake internal R&D has grown (Raport Rynek B+R+I w Polsce, 2015). Examples of such programs include: Infrastructure and Environment Operational Program, Innovative Economy Operational Program, Intelligent Development Operational Program. Another element of support, which is offered by the Ministry of Development, is the facilitation package for start-ups.

Entrepreneurship Development Agencies help implement economic development programs supporting innovation, entrepreneurship and research activities of small and medium-sized enterprises (SMEs), regional development, export growth, human resource development and the use of new technologies in economic activities (PARP, 2019). From the entrepreneur's perspective, a beneficial initiative was the creation of **Special Economic Zones**. SEZs support the development of new investments, and each operates in a specific area of Poland, in accordance with the regulation of the Ministry of Entrepreneurship and Technology. Main tasks of these private limited companies include: supporting new investments under the "Polish Investment Zone" mechanism, carrying out promotion of economic activities

Table 5. Enrollment rates in higher education

Specification	2005/06	2010/11	2015/16	2016/17	2017/18	2018/19
	in %					
Gross enrollment rate	48.9	53.8	47.6	47.4	46.9	46.2
Net enrollment rate	38.0	40.8	37.3	36.8	36.2	35.6

Excluding foreigners. In the academic year 2005/06, excluding students of extramural studies

Source: Polish government statistics, 2019, p. 16

and new investments, taking measures to improve cooperation between entrepreneurs, local community and social partners, assuring that the needs of the labour market are considered in the education process, creating tools for the development of innovative economy, recommending to entrepreneurs the optimal location of new investments (Ministerstwo Rozwoju, 2019).

Business development strategies are documents in the area of medium – and long-term economic policy, which contain recommendations for public policies. An example of such a strategy is the Strategy for Responsible Development for the period up to 2020 (including the perspective up to 2030), adopted by the Council of Ministers. The strategy sets out basic conditions, objectives and directions of the country's development in the social, economic, regional and spatial dimensions for the period 2020 and 2030. The document responds both to the systemic transformation errors made so far and to the new challenges facing a broadly defined socio-economic policy of Poland, presenting responsible, socially and territorially sustainable development. The strategy also defines the system of coordination and implementation, setting out the roles of individual public entities, as well as ways of cooperating with the world of business, science and with the society (Strategy for Responsible Development, 2017).

The National Broadband Plan for 2025 is a strategy for the development of network and telecommunications infrastructure. It is a strategy paper setting out actions and measures to achieve the objective of ensuring universal broadband access to the Internet. The overarching objective of the National Broadband Plan is to stimulate demand for high-throughput access services (Ministerstwo Cyfryzacji, 2017). The National Broadband Plan is in line with the objectives of the Digital Agenda for Europe (DAE), the country's medium-term development strategy "Country Development Strategy 2020" and the country's long-term development strategy "Poland 2030. The third wave of modernity" is an executive document for the "Effective State Strategy". The expected effects of the plan's implementation is also an increase in the awareness and skills of users. The objectives of the broadband plan also concern future-looking solutions such as the Internet of Things, which could bring a number of new services such as smarthome, smart city and M2M connectivity (Machine to Machine), which is an increasingly common phenomenon in the world.

New trends in technology development have a huge impact on changes in innovativeness of enterprises. The accelerated pace of digitization is changing the face of business and contributes to an even greater increase in dynamics of the environment and market structure. The fourth industrial revolution, known as Industry 4.0. is the use of networks, the Internet and Big Data resources in cyber-physical systems (Dalenogare et al., 2018, p. 384).

Conclusions

A proper understanding of the nature of the entrepreneurial ecosystem (EE) is crucial in developing entrepreneurship. Changes in the ecosystem can affect its condition, contributing to its evolution. The identified changes in the ecosystem have undoubtedly had a significant impact on the current shape of the ecosystem at the national level. In many cases, one change entails another, which is natural for ecosystems. The ability to determine domain dependencies can be crucial in trying to design an ecosystem.

The main elements that have influenced the ecosystem in Poland (regulatory change, EU accession) have created new opportunities for businesses and entrepreneurs. Certainly, the ecosystem's robustness has been put to the test. Other developments that are of accompanying nature and developed at a slower pace (areas of culture, human capital, support) provide results in today's evaluation of the level of entrepreneurship.

In the ecosystem there is a wide sphere of support (programs, incubators, competitions, associations, institutions, strategies), which aims to develop entrepreneurship. Participants act in the ecosystem with increased awareness, taking advantage of the opportunities offered by the entrepreneurship system. Increasing ecosystem awareness is linked to the increasing level of population's education, the quality of education and the cooperation of various entities belonging to the eco-system.

Poland's places in the REDI and GEI indices, both in terms of regions and the nation, indicate a good condition (health) of the ecosystem. Both indicators combine variables at individual level with institutional variables. By analysing the score of the pillars of entrepreneurship at regional and national level of the presented indices, we can see a positive change in the area of the Opportunity Start-up and Technology Absorption pillars, which may indicate an increase in the overall level of entrepreneurial abilities. Area in need of improvement is Competition, which is related to the level of uniqueness of the product and the market of new enterprises (start-ups). The second limiting area is enterprise innovativeness. The degree of Internationalization of companies and Start-up Skills are highly rated in the GEI report.

The domain of support is most developed in the entrepreneurial ecosystem, due to the European Union's support programs and strategy at national level. Poland's accession to the European Union has influenced the development of this sphere. However, mainly the more developed regions benefit from this support, and programs are needed for smaller cities and regions where access to education is limited. The concentration of innovative activity is present in an actively innovative group of enterprises. Companies wishing to implement R&D activities and innovation are less likely to receive institutional support. Despite the abundant active support programs, there is a noticeable lack of a coherent and comprehensive program, an intervention plan.

Enterprises are increasingly conscious in the ecosystem, which can have a positive impact on ecosystem co-evolution. The development of entrepreneurship also takes place through increasing the level of education and access to telecommunications infrastructure. Ecosystems create an environment that supports entrepreneurial activities,

but can also limit the implementation of these activities, therefore, the determination of the overall condition of the Polish ecosystem, identification of selected co-evolutionary aspects and conditions for further development provide directions for future empirical research.

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Wybrane aspekty koewolucji polskiego ekosystemu przedsiębiorczości

Streszczenie

Warunki funkcjonowania organizacji zmieniają się, a współczesne organizacje działają w bardziej złożonym, sieciowym środowisku. Koncepcja ekosystemu przyjęta z organizacyjnego punktu widzenia uwzględnia jego składowe elementy oraz powiązania uczestników. Ekosystemy rozwijają się naturalnie poprzez koewolucję, jednak różnymi działaniami możemy na nie wpływać i próbować projektować w sposób inteligentny. Kluczowe jest właściwe zrozumienie natury ekosystemu przedsiębiorczości. Ekosystemy o dobrej kondycji charakteryzują się większą wytrzymałością i wpływają korzystnie na zarządzanie w obszarze rozwoju firm. Wytrzymały ekosystem jest względnie bardziej przewidywalny, a relacje pomiędzy uczestnikami ekosystemu są mniej narażone na zakłócenia.
Celem publikacji jest określenie ogólnej kondycji polskiego ekosystemu przedsiębiorczości oraz próba identyfikacji wybranych aspektów koewolucyjnych. Przedstawiona ocena zachodzących zmian i ich wpływu na ekosystem przedsiębiorczości służy sformułowaniu wniosków oraz możliwości dalszego rozwoju ekosystemu. Rankingi Polski w indeksach REDI oraz GEI zarówno pod względem regionalnym i krajowym wskazują na dobrą kondycję ekosystemu, jednak niektóre jego obszary nadal wymagają wzmocnienia, co jest również podstawą do dalszych badań. Analizując różne spojrzenia na pojęcie ekosystemu, można zauważyć, że ekosystem składa się z czynników: technologicznych, kapitałowych, zarządczych, regulacyjnych, których połączenie decyduje o zdolności ekosystemu do rozwoju.

Słowa kluczowe

ekosystem, ekosystem przedsiębiorczości, przedsiębiorczość

PERCEPTION OF WORK PROCESSES AUTOMATION AND REMUNERATION EXPECTATIONS. SURVEY ON STUDENTS IN CRACOW

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Introduction

New technology stimulates changes in a large scope of social and economic phenomena (Avant, 2014), such as: economy sectors (Godin, 2006), product and processes innovations, business process and models (Blaschke et al., 2017), as well as corporate structures (Brown et al., 2014; Snow et al., 2017). These technologies, which include digital technologies, robotics and artificial intelligence, refer to automation of both mass production and office processes. For instance, Hindle et al. (2017, p. 5) shows that robotic process automation (RPA) experienced in 2016 a 68% growth rate on the global market, and by 2024 it will be valued 8.75 billion USD. Similarly, other studies suggest that global shared services centres are the sector where such solutions are introduced to the highest extent (Deloitte, 2017, p. 16; Lacity, Willcocks, 2016; Accenture, 2005; Lacity, Willcocks, 2012).

Poland presently holds the third place (ex aequo) with China and Mexico, among the most frequently indicated countries for locating shared services centres, after the United States (14% of the indications) and India (12%) (Deloitte, 2017, p. 6). Business services in Poland are typically located in Cracow, Warsaw or Wroclaw, as indicated by maturity and employment statistics (ABSL, 2019, p. 6). This sector is particularly important for the population covered by the study, in particular students of the city of Cracow, who constitute the labour supply for shared service centres.

The paper investigates whether the risk of automation of professions assigned to particular fields of study is considered by the future labour market entrants and reflected in their remuneration expectations. The research was conducted among students of universities and other

higher education institutions in Cracow[1]. So, the research indirectly refers to potential employees of shared service centres as well as factors of creative class spatial distribution. In particular, we are attempting to answer the question, if remuneration expectations of students, e.g. future employees, react to the ongoing and forthcoming processes of automation.

The structure of the paper is as follows. The following point reviews the related literature. In the next part we present the data and method employed in the study, which is followed by the presentation of the calculation results. The paper closes with the conclusions.

Literature review

Technological progress determines many changes in work processes. It stimulates the growing demand for new employee skills (OECD, 2016) by favouring cognitive and social skills (Deming, 2017), which also result in changes in demand for specific types of jobs. Scholars indicate that the demand for experts and talented employees increases, especially in the field of artificial intelligence and information analysis. Simultaneously, there is a decrease in demand for employees with basic skills, since their work can easily be replaced by computers, robots, and other digital technologies (Brynjolfsson, McAfee, 2014, p. 10). As a result, modern technologies, or more precisely automation penetrate production processes in many countries (Acemoglu, Restrepo, 2016). It is generally accepted that automation drives up wages, create employment, some jobs become more interesting, increasing employee satisfaction and boosting companies' ability to attract a skilled workforce (Deloitte 2016, p. 1–2). In particular, scholars showed a relative increase in the productivity of employees with high skills, performing work based on abstract thinking, creativity, problem solving (skill-biased technical change) (Autor, Acemoglu, 2011), as well as an increased demand for experts and talented employees, especially in the field of artificial intelligence and information analysis (talent-biased technical change) (Brynjolfsson, McAfee, 2014). Precisely, *„wage gains went disproportionately to those at the top and at the bottom of the income and skill distribution, not to those in the middle"* (Autor, 2015, p. 5).

In response to the observed tendencies scholars developed an approach to estimate the scope of automation (Autor et al., 2003), and the risk of automation of professions (Frey, Osborne, 2013). In particular, Autor, Levy and Murnane have developed the methodology for estimating the potential scope of work that could be automated (Autor et al., 2003), so-called routinisation hypothesis, which is also argued towards a more distinctive impact of ICT (Terzidis et al., 2017). In particular, this approach allows to distinguish routine and non-routine tasks of each occupation[2] (Autor et al., 2003). Routine tasks typical for blue collars, refer to sequential, structured, rule-based and procedure-based activities and have a relatively high automation potential. In turn, non-routine tasks, such as cognitive (abstract) and manual tasks covering issues related with problem solving, creativity, require interpersonal and environmental adaptation to specific situational variables and information assessment. Therefore, non-routine tasks depend on specific, managerial and technical posts in fields such as: law, medicine, sciences, engineering, design and management. Consequently, these tasks are not subject to automation, as it is difficult to code such tasks as the instructions for multi-variant ways of machine operation (Autor, Acemoglu, 2011, pp. 1076–1079). Following Autor and Acemoglu (2011), scholars have investigated how routine and non-routine tasks react to changes in production as a result of ongoing automatization. For instance, empirical studies show that the share of jobs with non-routine work increased, while with routine work – decreased in the past decades in the USA (Michaels et al., 2014; Autor, 2015), Germany (Dustmann et al., 2009), Denmark (Terzidis et al., 2017), Australia (Coelli, Borland, 2016), Canada (Green, Sand, 2015), Japan, and selected groups of high-income countries (Wang et al., 2015; Goos et al., 2009; Terzidis et al., 2017, p. 5).

Moreover, Frey and Osborne (2013) developed a methodology to identify the risk of automation of individual professions. In particular this approach is based on two stages. The first stage is about identifying factors and variables constituting barriers to automation. In the second stage, the factors identified in the first stage are used to classify occupations with the risk of automation. It is worth emphasising that Frey and Osborne (2013, p. 31) suggest that it is difficult to automate occupations requiring a relatively high level of: (a) perception and manipulation of objects and information, (b) creativity, and (c) social intelligence.

Frey and Osborne (2013) showed that in the following two decades 47% of all employees in the US economy will be in the high-risk group related to automation. In other countries, the proportion of high-risk occupations to automation is relatively high, e.g. Finland: 35%, Norway: 33% (Pajarinen et al., 2015), Europe: 54% (Bowles, 2014), Singapur: 25% (Lee, 2017). Some examples of occupations most exposed to automation are telemarketers – 99%, accountants and auditors – 94%, retailers – 92%, real estate agents – 86%, text editors and typists – 81%, and agricultural workers. The lowest risk of automation face occupations like policymakers and senior officials, life sciences and health professionals (Frey, Osborne, 2013, p. 68–72). In turn, it is estimated that up to 5% of all jobs in the US economy can be fully automated using up-to-date technology, while approximately 60% of all jobs have at least 30% of the tasks that can be automated[3] (Maryika et al., 2017, p. 8).

Methodology of Frey and Osborn were employed to identify the risk of automation of office processes, with special focus on financial sector, including the so-called shared service centres. For example, the number of bankers, traders and other employees on the Wall Street (front office employees) decreased by 16% in the period 2010–-2014. KPMG forecasts indicate that up to 100 million employees in this group will be replaced by automated processes by 2026 (Cline et al., 2016, p. 14). Automation poses a threat to many professions in the financial sector, e.g. accountants. Deloitte's studies have identified occupations in the financial function with: low, medium and high risk of automation (Nagarajah, 2016). The low probability of automation applies to work requiring higher competences,

consisting in strategic planning and consulting, financial analysis and controlling, including positions like specialists in business and financial project management, financial directors and managers. The average probability of automation is related to the following positions: Managers and purchasing directors. Finally, the high probability of automation refers to relatively simple work in the area of accounting, related to: settlement of transactions, receivables and payments, including positions: payroll manager, financial administrator, credit controller, financial account manager, financial and accounting technicians, financial manager (Nagarajah, 2016).

The latter group of positions, which is assigned the highest risk of automation, relates to the majority of work carried out in shared service centres, in particular those located in Cracow. Until now, the view has been popularised that automation in this sector eliminates, first of all, simple work with information that requires low competences, but currently there is also a noticeable decline in employment among professionals in the financial sector.

Considering the results of the above discussed studies, we attempt to answer the question how remuneration expectations of students, e.g. future employees, react to the ongoing and forthcoming processes of automation. In this context, one may look into the choices of the field of studies which have become popular in the recent years. Yet, having in mind, that the choice of educational path is a complex decision we do not expect to find any relationship between the automation and the popularity of different academic tracks. In turn, we aim to study the relationship between students' awareness of the automation of work processes and students' remuneration expectations. In particular, we test the following hypothesis: students, as the sample of future labour market entrants, are able to incorporate the risk of automation in their remuneration prospects. It is worth emphasising that although research on remuneration expectation has a long tradition (Attanasio, Kaufmann, 2009; Kaufmann, 2014; Delavande et al., 2011; Major, Konar, 1984; Major et al., 1984), the studies combining remuneration expectations and any issues related with risk are rare.

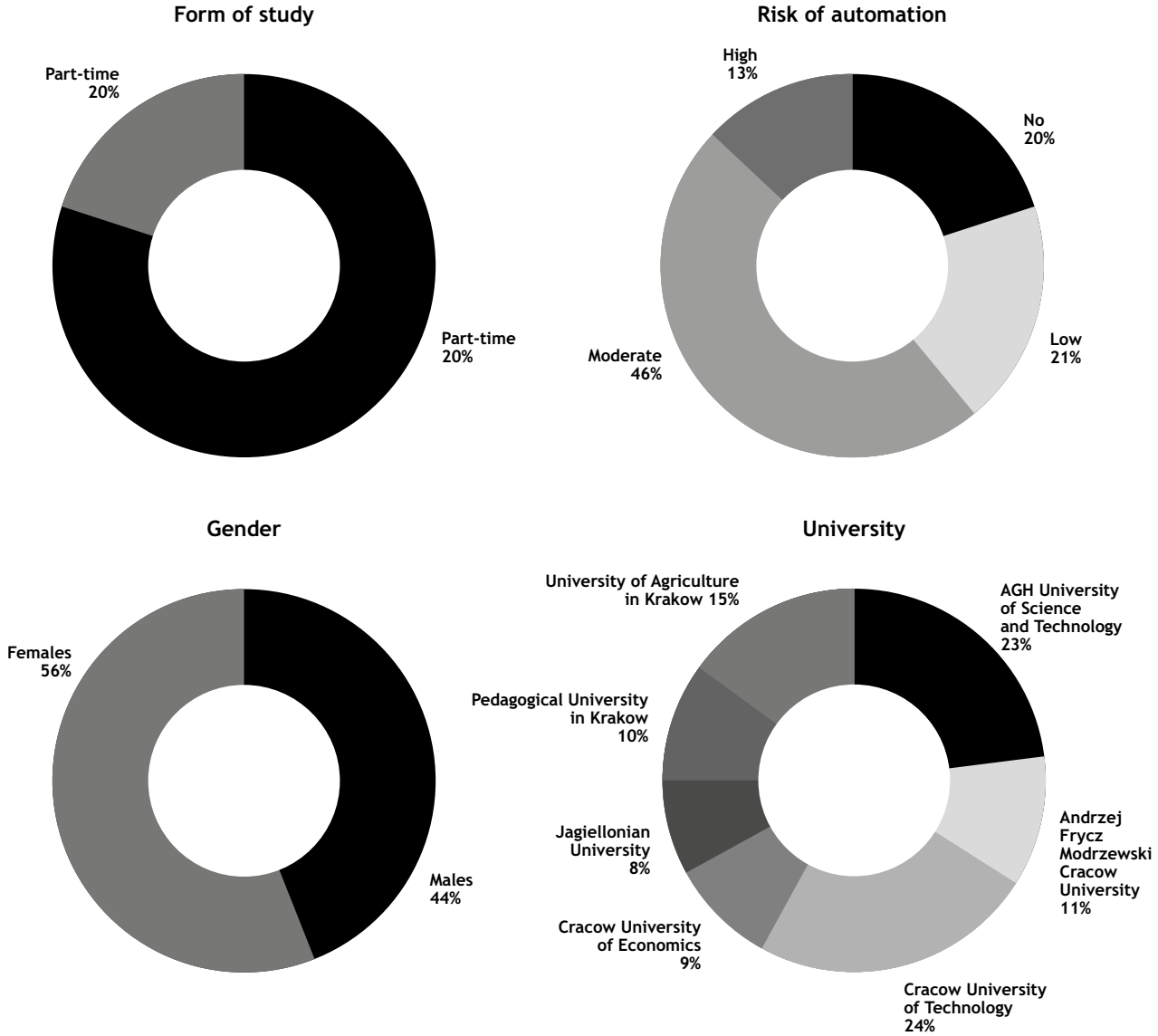

Figure 1. Sample structure
Source: own elaboration

Methods, research sample and data

We rely on primary and secondary data sources. The former one is a survey which was conducted at the turn of 2018 and 2019 on the convenience sample of students of 46 different field of studies in the city of Cracow, a major academic centre in Poland (n = 1180, see Figure 1 for the structure of the sample). The latter one is data retrieved from ELA database, a nationwide system to track careers of higher education graduates in Poland.

The main aim of the survey was to collect information on expected remuneration and the attitudes towards automation. To do so, we followed the literature on the methodology of measuring subjective expectations (for literature review, Delavande et al., 2011). In particular, we designed our survey to elicit individual distribution of future earnings similarly to Kaufmann (2014)for example, about career opportunities, translating into different expected returns to college. Poor people might expect low returns and thus decide not to attend or they might face high (unobserved. The data employed in the study was gathered using paper questionnaires with both open and closed questions given to the target group. We asked each individual to state the minimum (Y_{min}) and the maximum (Y_{max}) earnings he/she expected to earn after the completion of his/her current university-level faculty. Then, each respondent assigned the probability (π) of earning at least the midpoint of the Y_{min} and Y_{max}. These values were sufficient to derive measures of given percentiles of subjective distribution. Following Attanasio and Kaufmann (2009; 2014) and Kaufmann (2014)[4] we assumed that distribution was triangular and we calculated its first moment (Expected Remuneration – ER), with the following formula ((Guiso et al., 2002) for detailed explanations):

$$ER = \frac{1-\pi}{3}(2Y_{min} + Y_{max}) + \frac{\pi}{3}(Y_{min} + 2Y_{max})$$

From our secondary data source (ELA) we used the information on the earnings received by Polish graduates. On the basis of administrative data, ELA provides information on earnings of University graduates aggregated by form of studies (regular vs part-time), university, and field of studies. In particular, we used the information on the mean earnings of graduates of a given track, in the first year after graduation for the latest available year (2017). We combined this information with our individual-level survey based data, to calculate our main variable of interest – RRE (Relative Remuneration Expectation). We define RRE as:

$$RRE_i = \frac{ER_i - RR_j}{RR_j} \times 100\%$$

where:

RRE_i – Relative Remuneration Expectations of respondent *i*;

ER_i – Expected Remuneration of respondent *i*;

RR_j – Average remuneration received by graduates of track *j*.

Therefore, our dependent variable indicates remuneration expectations in relation to the real remuneration observed among students that graduated the same track of studies in a year 2017 (2 years prior to our survey).

Among the set of the right-hand side variables we included the risk of automation, and few controls to check the implication of personal and demographic characteristics of respondents, such as: gender, place of living, form of study (full-time versus part-time), and self-assessed probability of employment in automation-intensive service sector.

The division of studies into risk groups was made on the basis of the methodology of estimating the risk of automation of individual professions by Frey and Osborn (2013). This methodology is used in many studies (Maryika et al., 2017; Nagarajah, 2016). Such research approach was adopted to ensure internal validity of empirical evidence through observational and interpretational replicability (Stake, 1995).

Results

Data on the expected earnings, grouped by the level of automation risk, reveals that expected remuneration is, on average, lower among those students who face the lowest likelihood of automation of their profession (Figure 2).

These results, although surprising at the first sight, can be easily explained with the observed earnings of professionals assigned to the *lowest risk* category. Our sample of no-risk category consists of university tracks, whose graduates earned in 2017, on average, only 1542 PLN (as compared to 2152 PLN, 2266 PLN and 2379 PLN for low, moderate and high risk category, respectively). A significant number of students in this group are likely to look for a job in the public sector or are studying humanities/art. In both cases, professions of these graduates are at no risk of automation and are traditionally under-paid in Poland. In this context, the low expectations of these students can be treated as an expression of rationality. Indeed, we observe this kind of rational expectations in the whole of our sample – students tend to bind their expectations with the remuneration observed among graduates of their track (Figure 3). On average, students whose real earnings prospects are higher state higher remuneration expectations.

On the other hand, we observe a tendency of overestimating future remuneration and expecting to earn much more than the average value observed in reality. As presented in Figure 4 the vast majority of respondents estimated their future remuneration to be higher than average earnings of the respective graduates. The median of RRE indicates that over 50% of the surveyed students expect earnings higher by 66.9% than the average remuneration in their profession. These results were rather expectable, and can be explained with:

- the interpolation of positive trends on the labour market observed at the time the survey was conducted;
- and the phenomenon of *over-optimism* – a well-documented general tendency of humans to overestimate future successes and underrate the likelihood of negative events (Sharot, 2011).

On the basis of Figure 4 we can also conclude that over-optimism, although persistent among all subgroups, is smaller for students who face a higher risk of

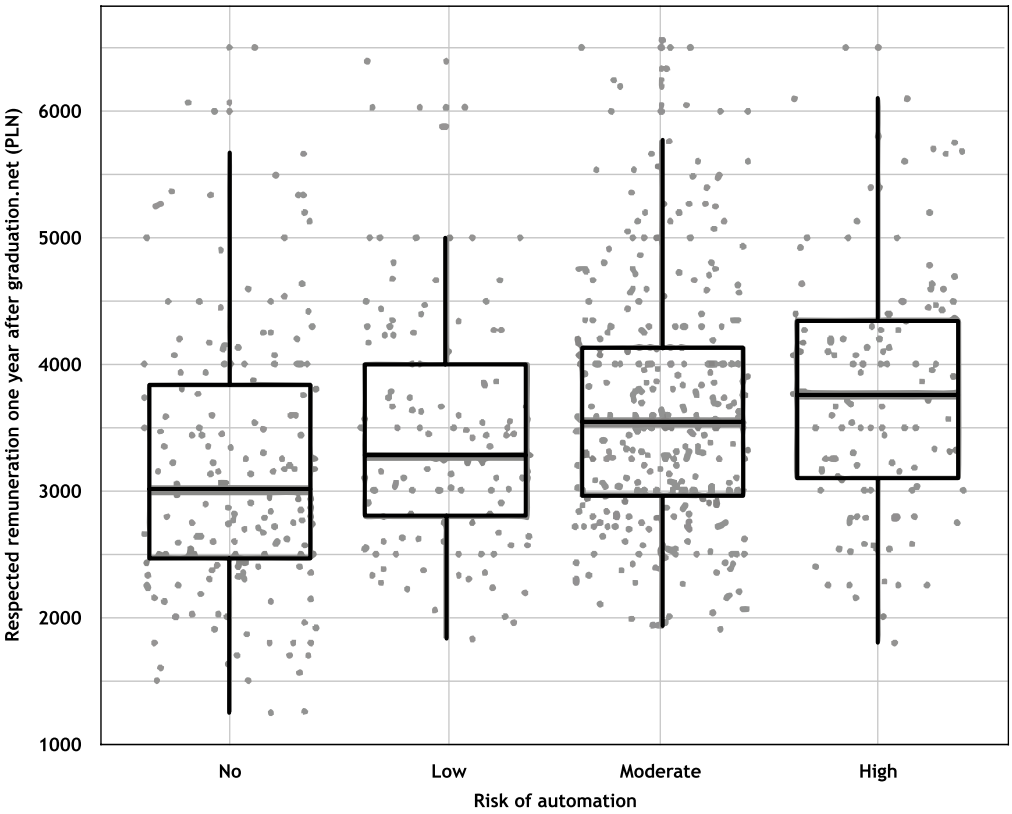

Figure 2. Expected remuneration, one year after graduation, net (in PLN) by category of risk of automation
Source: own elaboration

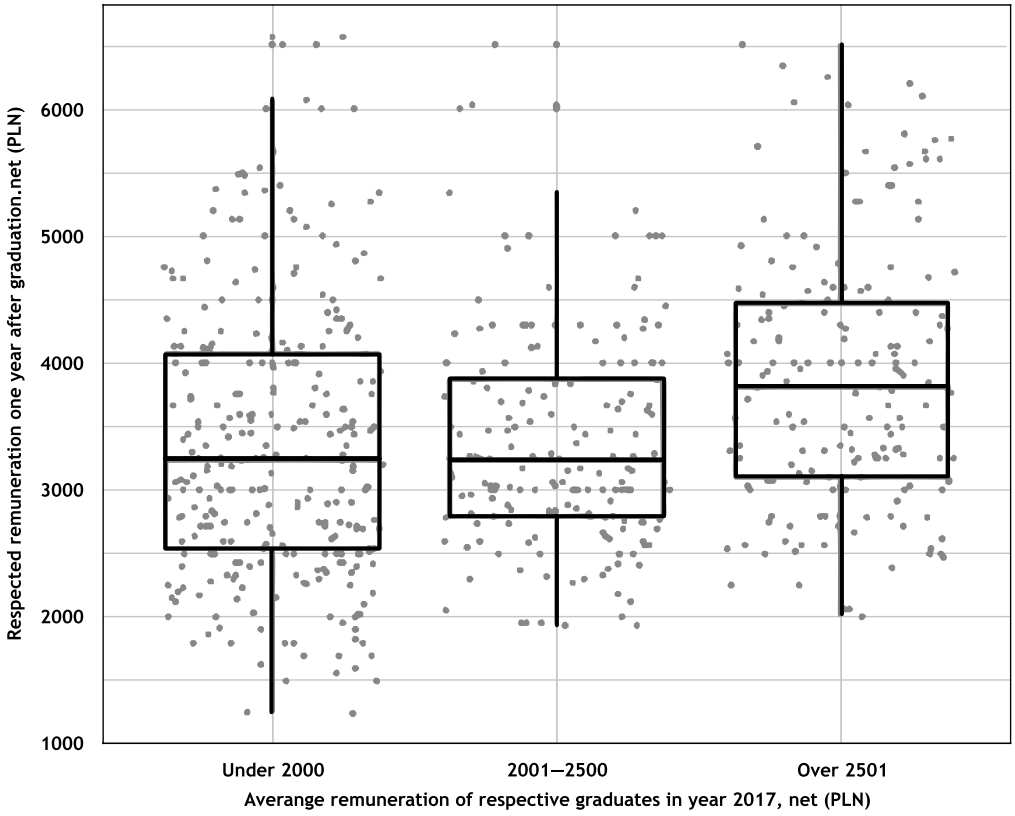

Figure 3. Expected remuneration of students (net, PLN) and real remuneration of the respective graduates (net, PLN)
Source: own elaboration

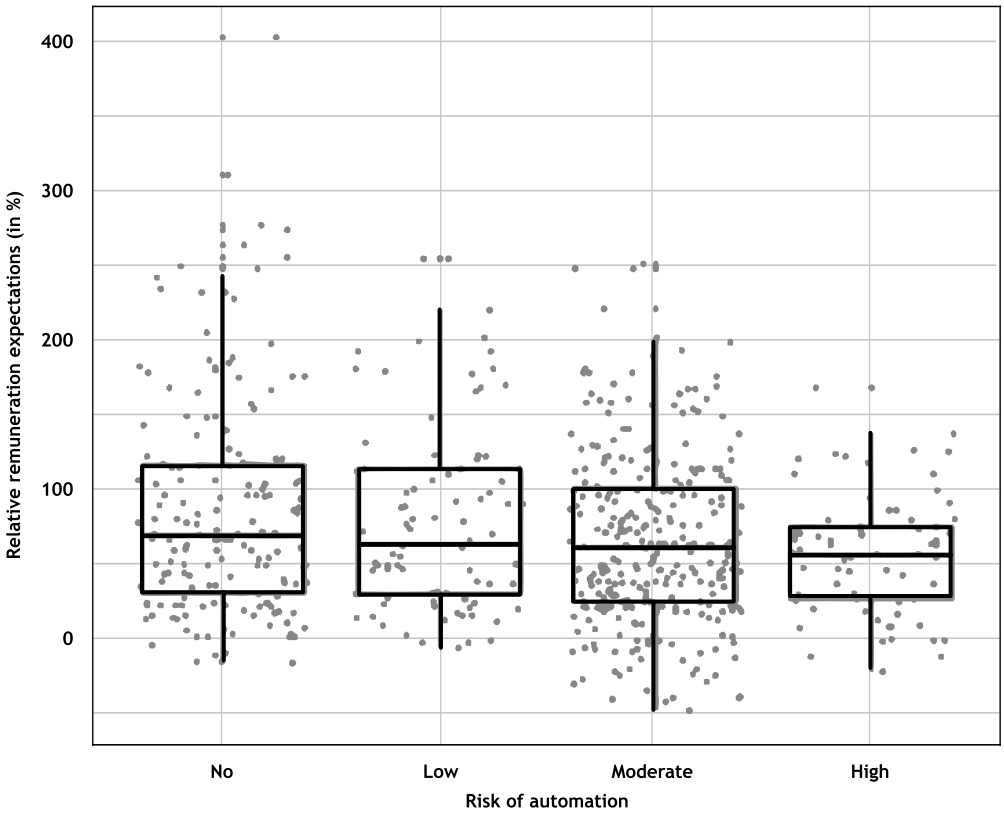

Figure 4. Relative remuneration expectations by category of risk of automation
Source: own elaboration

job automation. Such observation relates positively to our hypothesis that students adjust their expectations to the processes of jobs automation.

To verify if students' remuneration expectations reflect the risk associated with automation we ran a number of OLS regressions. In the regression No. 1, the only independent variable is the one that describes the risk of automation. In the result, column 1 (Table 1) presents differences in means of the dependent variable between group of respondents with no risk of automation and other risk groups. In line with data presented in Figure 4, we find out, that students who face at least some risk of automation (low, moderate or high) tend to have lower relative expectations than students whose jobs are not at risk of automation.

Furthermore, we include a set of control variables to our regression, namely: gender, place of living, form of study, and self-assessed probability of employment in automation-intensive service sector. The results reported in columns 2 and 3 do not differ substantially from the baseline model, indicating that students who face the highest risk of their job being automated, tend to formulate the smallest relative remuneration expectations. Counterintuitively, we observe that the group at moderate risk of automation has higher expectations that the group with low likelihood of automation. We expect this result may be a reflection of non-ideal categorisation of the automation risk. Still, these two group form significantly lower expectations that students at no risk of automation.

In the next set of regressions we look into the problem of different perception of automation and its impact on expected earnings (Table 2). We questioned students, if they agreed that automation of the office processes was a threat to job seekers in the institutions that implement such technologies. Responses to this question (labelled as „Perception of automation") were included in the regression of the relative remuneration expectations. As an additional control variable we included self-assessed probability of being employed in the institutions that automate office processes (SAPE). As reported in column 1, the obtained coefficients (except the variable *Risk of automation*) were not statistically significant. However, one should not conclude, that perception of automation is not important for the expected earnings prospects. A closer look at the problem discloses a rather more nuanced relationship. As documented in columns 2 and 3, the interaction between SAPE and perception of automation is an important factor to consider. When interaction term is included among the set of the independent variables, we obtain statistically significant coefficients for the variables of interest. On the basis of the reported results, we conclude, that a negative perception of automation leads to lower relative remuneration expectations. Moreover, the results show that the higher the SAPE variable, the smaller the remuneration expectations. At the same time, a positive coefficient of interaction term indicates that the effects of the negative perception of automation are suppressed by higher SAPE. In other words, respondents who simultaneously state that automation endangers employment prospects and who believe that their chances to become employed despite extensive automation are high, expect relatively high earnings.

Table 1. OLS regression of relative remuneration expectations

	Dependent variable:		
	Relative Remuneration Expectations		
	(1)	(2)	(3)
In risk of automation = low	-20.713***	-26.620***	-24.941***
	(6.729)	(7.043)	(7.269)
In risk of automation = moderate	-29.771***	-19.242***	-17.770***
	(5.935)	(6.521)	(6.764)
In risk of automation = high	-39.548***	-33.089***	-32.084***
	(7.736)	(8.294)	(8.496)
Form of study = full-time		4.865	5.541
		(6.790)	(6.865)
Male		12.654***	12.667***
		(4.203)	(4.328)
Living in Krakow		8.332	9.383
		(6.459)	(6.598)
Living in small city (< 50k inhabitants)		8.258	9.999
		(6.953)	(7.172)
Living in the countryside		1.134	3.144
		(6.063)	(6.234)
Self-assessed probability of being employed in institutions that automate office processes			0.034
			(0.084)
Constant	89.866***	77.184***	72.294***
	(5.678)	(9.736)	(10.971)
Observations	777	769	736
R^2	0.022	0.039	0.037
Adjusted R^2	0.018	0.029	0.025
Residual Std. Error	56.500 (df = 773)	56.223 (df = 760)	56.513 (df = 726)
F Statistic	5.827*** (df = 3; 773)	3.883*** (df = 8; 760)	3.079*** (df = 9; 726)
Note: *p <0.1, **p<0.05, ***p<0.01, standard errors in parentheses			

Source: own elaboration

We find this attitude fairly justified, as students may expect that institutions which invest heavily in office work automation may suppress employment. At the same time, the same institution will be eager to offer remuneration higher wages to highly-skilled employees whose work is not easily automated, or/and is needed to support automation processes.

Conclusions

The paper reports the findings coming out from the data and information extracted from the survey conducted at the turn of 2018 and 2019. In particular, it includes a discussion of data and information that investigates whether the risk of automation of professions assigned to particular fields of study is recognised by the future labour market entrants and reflected in their remuneration expectations. The data and information employed in the study were collected among the students of higher educational institutions in Cracow, which is one of the leading centres for shared service in the world. Our findings relate to two main arguments.

Firstly, the empirical study shows that the expected remuneration is, on average, lower among those students who face the lowest likelihood of their profession automation. Consequently, the respondents whose real earnings prospects were higher, formulated higher remuneration expectations,

Table 2. OLS regression of relative remuneration expectation on the perception of automation

	Dependent variable:		
	Relative Remuneration Expectations		
	(1)	(2)	(3)
In risk of automation = low	-25.988***	-26.869***	-27.911***
	(7.263)	(7.225)	(7.297)
In risk of automation = moderate	-18.035***	-17.490***	-18.815***
	(6.701)	(6.662)	(6.778)
In risk of automation = high	-30.346***	-31.271***	-33.164***
	(8.447)	(8.399)	(8.529)
Perception of automation = neutral	-3.018	-20.159	-18.741
	(6.892)	(14.565)	(14.548)
Perception of automation = negative	2.487	-34.450***	-33.016**
	(6.325)	(13.152)	(13.125)
Self-assessed probability of being employed in institutions that automate office processes (SAPE)	0.097	-0.349*	-0.342*
	(0.082)	(0.181)	(0.180)
Male			9.593**
			(4.262)
Perception of automation = neutral:SAPE		0.305	0.268
		(0.239)	(0.238)
Perception of automation = negative: SAPE		0.669***	0.642***
		(0.210)	(0.209)
Constant	83.907***	108.491***	104.877***
	(8.346)	(12.157)	(12.186)
Observations	737	737	732
R^2	0.024	0.039	0.044
Adjusted R^2	0.016	0.028	0.032
Residual Std. Error	56.397 (df = 730)	56.042 (df = 728)	55.851 (df = 722)
F Statistic	2.947*** (df = 6; 730)	3.647*** (df = 8; 728)	3.700*** (df = 9; 722)
Note: *p <0.1, **p<0.05, ***p<0.01, standard errors in parentheses			

Source: own elaboration

compared to students with lower expected salaries in a future career. Moreover, it has been was evidenced that over-optimism in anticipating the future earnings is more typical for respondents whose field of study is related with a profession that is more likely to be challenged by the automation. In result, our study supports the hypothesis that students adjust their expectations to the processes of jobs automation.

Secondly, our study demonstrates that students who face the highest risk of their job being automated, tend to formulate the smallest relative remuneration expectations. It means that students who believe their future profession is likely to be triggered by automation, anticipate on the one hand a high chance to be employed, on the other hand – relatively higher future earnings. It means that these students discount high risk of automation of the professions where they might be hired after graduation.

However, it is worth emphasizing that the findings of the study and conclusions formulated therein before have to be taken cautiously. Firstly, the research target group consists of students in Cracow only. Thus, the research sample covers only a fraction of future labour market entrants. Consequently, the remuneration expectations of the students illustrated in the study do not reflect the situation of other groups of future labour market entrants, such as secondary school graduates, new-entrants coming from the external labour market. Secondly, due to the convenience sampling issues,

the opinions gathered through the survey cannot be treated as fully representative to the whole population of students.

Thirdly, the survey was conducted before the breakout of the COVID-19 pandemic. Therefore, it does not reflect the implications of pandemic on remuneration expectation of the research target group. However, the pandemic and a corresponding lockdown in a number of industries might have a huge impact on how future labour entrants (i.e. students) evaluate their remuneration prospects.

The research problem is of economic nature. However, its conclusions might be related to the management context. In particular, few aspects seems to be of a special interest, i.e. identification of major technological trends, speed of their implementation, main factors influencing automation in particular sectors as well as organisational and structural changes are and might be identified within automation-prone sectors, considering that the automation offers an alternative to outsourcing and offshoring. Deep sector-based understanding and internal assessments, as the result of research studies might enable enterprises to benefit from automation. The changing landscape of technology-prone sectors challenges the status quo for enterprises in terms of the way they function, their employment and human resource development needs (Chang, Huynh, 2016, p. 23). Expected buoyant demand for some but not all professional occupations, reflects the forecasts of continued growth of service industries, where specially crucial are: interpersonal skills, higher-order cognitive skills and systems skills (Bakhshi et al., 2017, pp. 14–15).

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Endnotes

1) Questionnaire survey covered the students in following fields of study: Public Safety, Medical Analytics, Architecture, Biology, Biotechnology, Construction, Chemistry, Dietetics, Economics, Ethics, Pharmacy, Finance, Geodesy, Informatics, Electronics and Telecommunication, Biomedical Engineering, Civil Engineering, Environmental Engineering, Material Engineering, Cosmetology, Logistics, Painting, Mathematics, Gardening, Pedagogics, Law, Psychology, Chemical Technology, Food Technology, Human Nutrition Technology, Commodity Science, Transport and Logistics, Electrotechnics and automatics, Geodesy, Geography, Mining and Geoengineering, Ceramics and Material Engineering, Robotics, Production and Energy Engineering, Land Science, Mechanics Science, Management, Agricultural Economics, Management and Production Engineering, Zootechnics at the higher educational institutions such as: Jagiellonian University, Cracow University of Economics, Cracow University of Technology, Pedagogical University of Krakow, AGH University of Science and Technology, University of Agriculture in Krakow, Andrzej Frycz Modrzewski Krakow University.

2) This typology conceptualized each occupation as a series of tasks, which determine the necessary skills possessed by employees. Therefore, the terms „tasks" and „skills" are used interchangeably, depending on whether referred to an occupation or an employee.

3) For example, data collection (64% potential for automation and 17% of working time in the economy) and its processing (69% potential for automation and 16% of working time in the economy) are carried out in almost all sectors, and consists in: administration of human resources, payroll and transaction data, placing data in the forms of insurance, credit, banking and health institutions (Maryika et al., 2017, p. 44).

4) Kaufmann argues, that triangular distribution suits the probability distribution of future earnings well because it gives relatively small weight to the earnings further away from the mid-point.

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Postrzeganie automatyzacji procesów pracy a oczekiwania płacowe. Badanie wśród studentów Krakowa

Streszczenie

Automatyzacja procesów pracy jest dynamicznie rozwijającym się zjawiskiem wpływającym na procesy społeczno-gospodarcze w ramach: sektorów gospodarki, innowacji produktowych i procesowych, modeli biznesowych oraz struktur przedsiębiorstw. Dynamicznie rozwija się również w obszarze centrów usług wspólnych. W artykule zbadano, czy ryzyko automatyzacji zawodów przypisanych do poszczególnych kierunków studiów jest dostrzegane przez przyszłych uczestników rynku pracy i znajduje odzwierciedlenie w ich oczekiwaniach płacowych. Badania przeprowadzono wśród studentów uczelni wyższych i innych krakowskich uczelni. Badanie opiera się na pierwotnych i wtórnych źródłach danych. Pierwsze z nich to badanie przeprowadzone na przełomie 2018 i 2019 roku na próbie studentów reprezentujących 46 kierunków studiów w Krakowie (n = 1180). Drugie źródło danych to dane pozyskane z bazy danych ELA, ogólnokrajowego systemu śledzenia karier absolwentów szkół wyższych w Polsce. Przeprowadzone badania wykazały, że studenci zwykle wiążą swoje oczekiwania z wynagrodzeniem obserwowanym wśród absolwentów ich kierunku. Średnio studenci, których realne perspektywy zarobków są wyższe, mają wyższe oczekiwania płacowe. Badanie ujawniło nadmierny optymizm, choć utrzymujący się we wszystkich podgrupach, jest mniejszy w przypadku studentów, którzy są narażeni na większe ryzyko automatyzacji pracy. Dodatkowo studenci, którzy są narażeni na największe ryzyko automatyzacji swojej pracy, zwykle formułują najmniejsze względne oczekiwania płacowe. Ponadto negatywne postrzeganie automatyzacji prowadzi do niższych względnych oczekiwań płacowych.

Słowa kluczowe

automatyzacja, postrzeganie automatyzacji przez studentów, oczekiwania płacowe, centra usług wspólnych

COVID-19 AND LOCAL GOVERNMENT RESPONSE IN POLAND

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Introduction

Poland reported its first positive Covid-19 case on March 5, 2020[1]. Relatively strict containment measures including school, restaurant, and workplace closures in concert with border control and travel restrictions were enacted this same month. Poland's response to the virus collectively was initially largely efficacious in staunching the spread of the virus and limiting its transmission among those within the country. Poland experienced significantly lower rates than many of its European peers. However, mid-way through the summer in May, politicians and public health officials began relaxing these restrictions ostensibly to encourage citizens to vote in its upcoming presidential election[2]. Additionally, mounting pressure to reopen schools has also contributed towards a weakening of overall strictness. Despite making it through the first wave of Covid-19 in Poland, scientists are right to fear the effects of a recrudescence of the virus dubbed the „second wave" this Fall. Indeed, this second wave is already beginning to affect European countries variously with cases in Poland recently rising to record levels. Evaluating regional variation in key Covid-19 statics across Voivodeships in Poland in addition to its Government response, can help policy makers prepare to combat the second wave of the virus successfully and limit the amount of deaths to the greatest extent possible.

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Regional Variation in Covid-19 Statistics

In order to evaluate the Polish Government's regional response to Covid-19, it is first important to assess its regional variation in key related statistics. This includes a thorough investigation of the differences between cases, deaths, and testing per 100,000 residents across Voivodeships as well as the case fatality rate in each. This information can in turn help inform general recommendations for targeted approaches to public policy implementation throughout the country.

First, it is important to examine the differences in Covid-19 case distribution and how it varies regionally. As shown in Figure 1.1, case distribution per 100,000 residents primarily tends to fall within the range of 160 and 180. The majority of Voivodeships experience slight regional variation between these values with three notable exceptions. Silesia, Lesser Poland, and Lodz, all experience case values of more than 200. Despite the largest city in Poland, Warsaw being located in the Masovian Voivodeship, its value of 181.48 cases is well below the country's highest. Silesia, in southern Poland, is an outlier with a value of 457.37 cases per 100,000 residents. This is due in great measure to the perennial outbreaks of Covid-19 cases associated within groups of Polish miners[3]. Indeed, outbreaks among coal miners and their families and how to deal with them have proved a contentious policy debate among both local governments and mining executives within the region. Shutting down mines has sizable financial implications while maintaining operations almost certainly leads to further exacerbate the spread of the virus; not least, due to failure to or inability to adhere to proper social distancing measures. This region has been the epicenter of Poland's virus battle since its initial outbreak and has consequently impacted neighboring contiguous regions.

Within this discussion, it is also important to consider the regional variation in deaths per 100,000 and how they vary across Voivodeship. This can help policy makers assess the efficacy of certain region's ability to contend with the virus in terms of providing medical care or give insights to the demographic breakdown of the region. Consequently, policy makers can increase funding or apportion additional medical equipment, medication, or supplies to regions which experience an uncharacteristically high number of deaths. In comparison to case distribution, deaths per 100,000 residents experience much larger region variation across Voivodeships. Unsurprisingly, regions which experience higher case rates tend to experience higher numbers of deaths. Similarly, according to Figure 1.2, Silesia and Lodz both have the two highest deaths per 100,000 residents at 10.96 and 9.65 respectively. The next highest is 7.64 in Masovia likely related to the higher population density of this region. Interestingly, despite having one of the highest levels of case distribution, Lesser Poland's value for deaths per 100,000 residents is 4.18, markedly lower than that of many of its peers. This may imply that policy makers should look closely at the virus response being implemented in this region and examine whether techniques applied or medical knowledge or expertise being used there may be used elsewhere to help lower the amount of deaths being experienced in other regions.

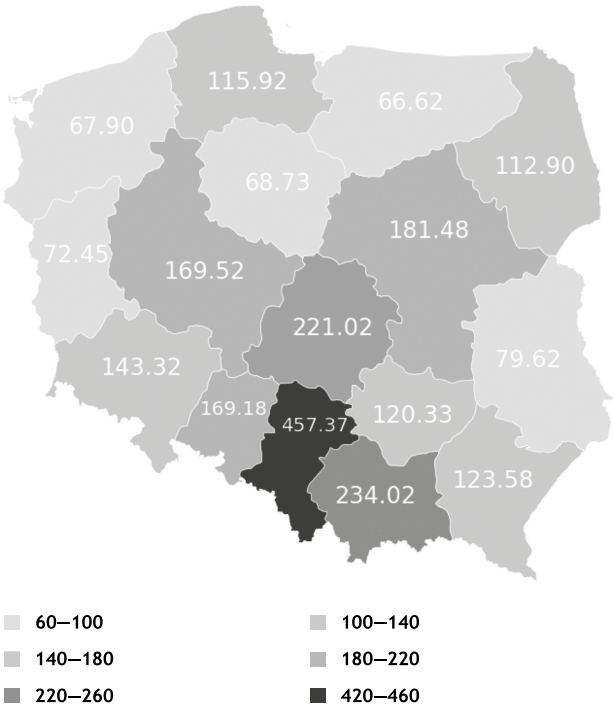

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Figure 1.1. Covid-19 Cases per 100,000 residents by Voivodeship in Poland
Source: Polish Ministry of Health, https://www.gov.pl/web/zdrowie/covid

Coivd-19 testing per 100,000 residents tells a very different story then the previous two metrics. The distribution of testing breaks from the concentrations followed by both cases and deaths. According to Figure 1.3, the Masovian Viovodeship has the highest number of tests administered totaling 11,530.36 per 100,000 residents, more than 2,800 more administered than the next highest region. This may be due in part to the fact that the capital city, Warsaw is located in this Voivodeship and in turn has greater accessibility or capacity for testing. Most of the regions that have the highest number of tests, do not in turn have the highest levels of case distributions. This implies that additional testing capacity should be distributed to regions which are experiencing high case values as many may be going undetected due to lack of testing. Increased testing in these regions will help local governments enact more effective policy measures tailored to local idiosyncrasies and help slow the spread of the virus in these regions. More widespread testing in hotspot regions can help provide better methods for contact tracing and reduce the number of untested but positive citizens further spreading the virus and remaining unquarantined. Overall, testing per Voivodeship is relatively evenly distributed with most values falling close to the mean value of 6199.79 tests per 100,000 residents.

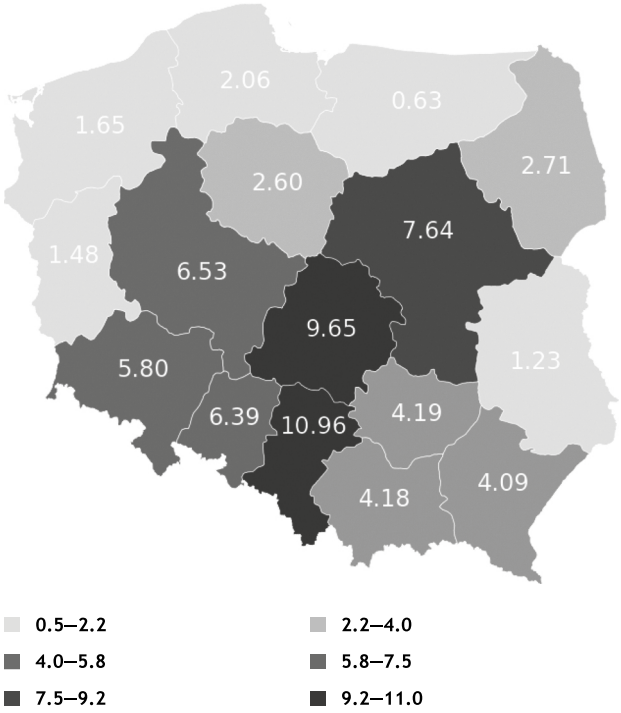

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Figure 1.2. Covid-19 Deaths per 100,000 residents by Voivodeship in Poland
Source: Polish Ministry of Health, https://www.gov.pl/web/zdrowie/covid

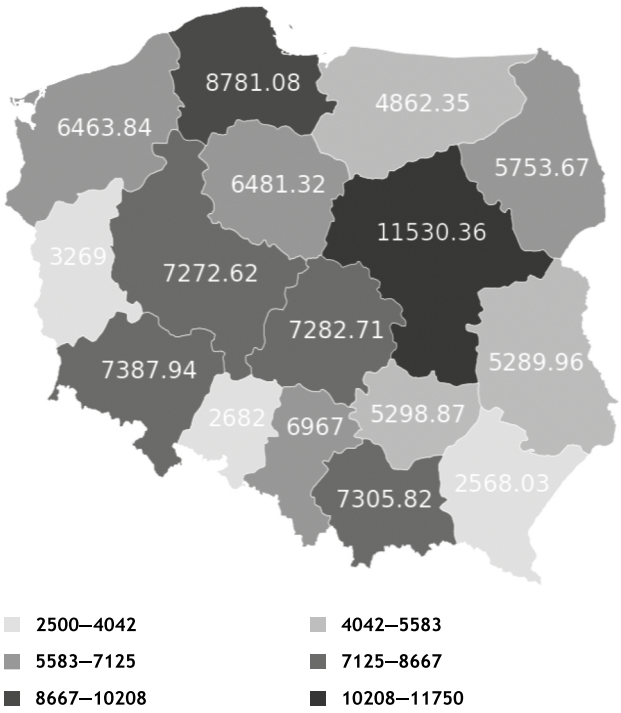

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Figure 1.3. Tests per 100,000 residents by Voivodeship in Poland
Source: Polish Ministry of Health. https://www.gov.pl/web/zdrowie/covid

Finally, one of the most important statistics to evaluate is the regional variation in case fatality rate across Voivodeships. Figure 1.4 highlights that the case fatality distribution is somewhat similar to that of testing, in that both seem to have their highest values towards the center of the country. Lodz has the highest case fatality rate of 4.37% and the second highest deaths per 100,000 residents. For Silesia and Lesser Poland, despite having relatively high cases and deaths per 100,000 residents, they both have significantly lower values for case fatality rates than Lodz – 2.40% and 1.78% respectively. The implication of these findings is that case fatality rates are highest in the central parts of the country and therefore additional attention should be paid towards helping to lower these values within these regions. Additional medical supplies and medical personnel might be necessary to contend with the disease in these regions. Additionally, further investigations should be conducted into this region to identify which key factors may be contributing to these differences so that they can be addressed at the federal and regional levels within the country. This may lead to regionally targeted policy measures or additional funding appropriations.

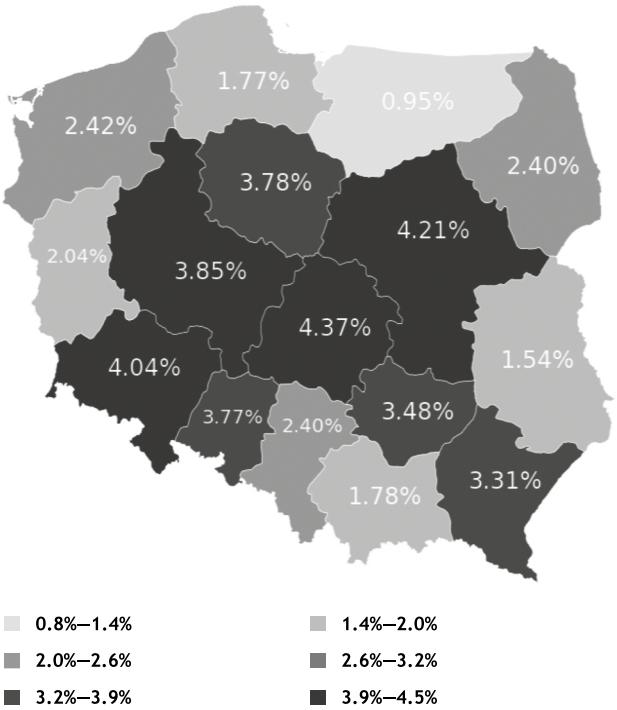

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Figure 1.4. Covid-19 Case Fatality Rate by Voivodeship in Poland
Source: Polish Ministry of Health, https://www.gov.pl/web/zdrowie/covid

Collectively, despite having only the fourth highest level of testing, the Warmian-Masurian Voivodship has the lowest values across all the other three metrics. Although its cases per 100,000 residents of 66.62 is relatively close to those in other nearby regions, its deaths per 100,000 residents of .63 and case fatality rate of .95% patently lead Poland for its low values. This implies that regional factors in the Warmian-Masurian have clearly been the most successful than in other regions and peripheral Voivodeships should look towards

Table 1.1. Covid-19 Values by Voivodeship (2020)

Voivodeship	Total Cases	Cases 100k	Total Deaths	Deaths 100k	Total Tests*	Tests 100k	Case Fatality
Lodz	5451	221.02	238	9.65	179613	7282.71	4.37%
Holy Cross	1494	120.33	52	4.19	65790	5298.87	3.48%
Greater Poland	5923	169.52	228	6.53	254104	7272.62	3.85%
Kuyavian-Pomeranian	1428	68.73	54	2.60	134662	6481.32	3.78%
Lesser Poland	7958	234.02	142	4.18	248439	7305.82	1.78%
Lower Silesian	4158	143.32	168	5.80	214339	7387.94	4.04%
Lublin	1686	79.62	26	1.23	112018	5289.96	1.54%
Lubusz	735	72.45	15	1.48	33167	3269.32	2.04%
Masovian	9806	181.48	413	7.64	623026	11530.36	4.21%
Opole	1669	169.18	63	6.39	26462	2682.35	3.77%
Podlaskie	1334	112.90	32	2.71	67984	5753.67	2.40%
Pomeranian	2705	115.92	48	2.06	204907	8781.08	1.77%
Silesian	20735	457.37	497	10.96	315853	6967.05	2.40%
Subcarpathian	2631	123.58	87	4.09	54673	2568.03	3.31%
Warmian-Masurian	952	66.62	9	0.63	69483	4862.35	0.95%
West Pomeranian	1155	67.90	28	1.65	109952	6463.84	2.42%

Last Updated: 9/4/20
Source: Polish Ministry of Health, https://www.gov.pl/web/zdrowie/covid

potentially modeling their responses after those done in the Warmian-Masurian. An expanded list, with all values for different Voivodeships, is shown in Table 1.1 for further comparative purposes.

Polish Government Response

Poland is a unitary state where most of the governance powers are concentrated at the center. At the same time, there is a certain degree of decentralization in the government. Administratively, Poland is divided into 16 voivodeships (or provinces), 380 powiats (or counties) and 2,478 gminas (or municipalities). There are two main administrators in voivodeships. Voivode (or governor) is a central government appointee, whereas Marshal is the elected official. As an elected local government official, Marshal has a number of important policy responsibilities in the areas of education, health and regional development, among others. It is particularly noteworthy during this pandemic that a lot of services related to health care and health care planning and strategies fall under the responsibility of voivodeships, which highlights the importance of local government response to the COVID-19 pandemic[4].

On the other hand, there is limited fiscal decentralization particularly compared to other more developed economies in Europe and elsewhere. One commonly used measure of fiscal decentralization is the share of subnational tax revenue in total government tax revenue. Figure 2 shows the subnational tax revenue shares for OECD countries in 2017. When we examine Figure 2, Poland's subnational share of 13.2% is less than the OECD average of 15.03%. It is also lower than most European countries. This means that Poland's revenue system is on average more centralized than the OECD comparison group.

Poland's response to Covid-19 can be divided into its overall stringency, government response, containment, and economic support. Data from the International Monetary Fund (IMF) and Oxford University's Oxford COVID-19 Government Response Tracker (Ox-CGRT) help inform our evaluation of their response collectively.

As Figure 3.1 highlights, Poland's overall stringency index has changed substantially over the past few months. It experienced its highest stringency values from the period of April through June with a value slightly above 80. After this time, the value began to

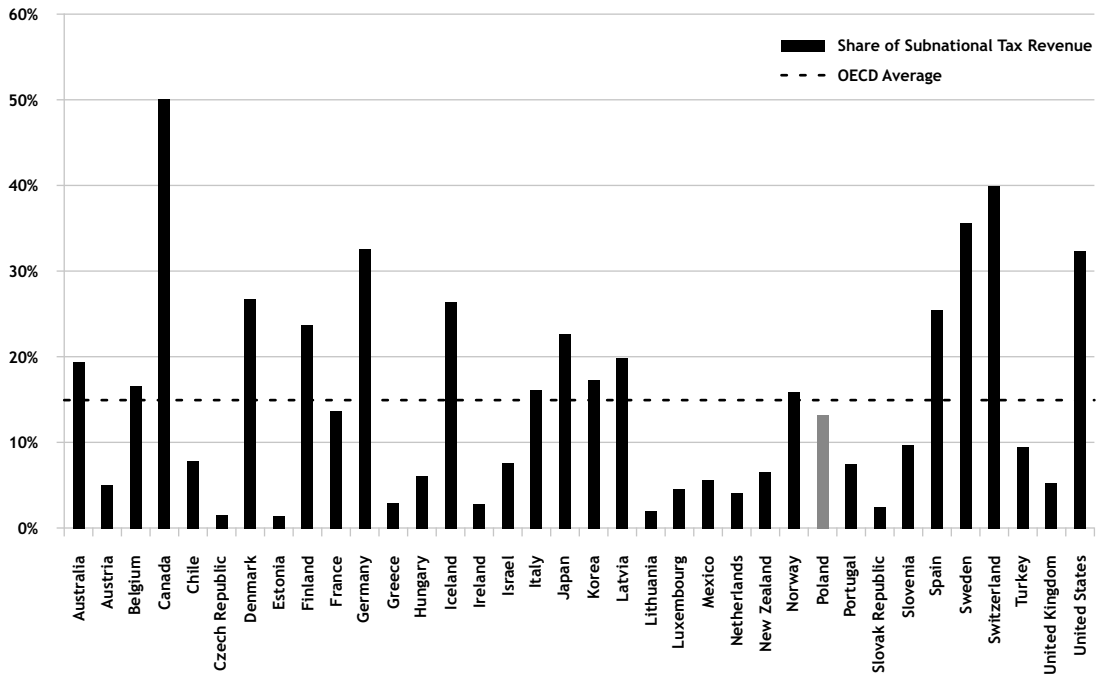

Figure 2. Share of Subnational Tax Revenue in Total Tax Revenue in OECD Countries (2017)
Source: OECD Global Revenue Statistics Database. https://www.oecd.org/tax/tax-policy/global-revenue-statistics-database.htm

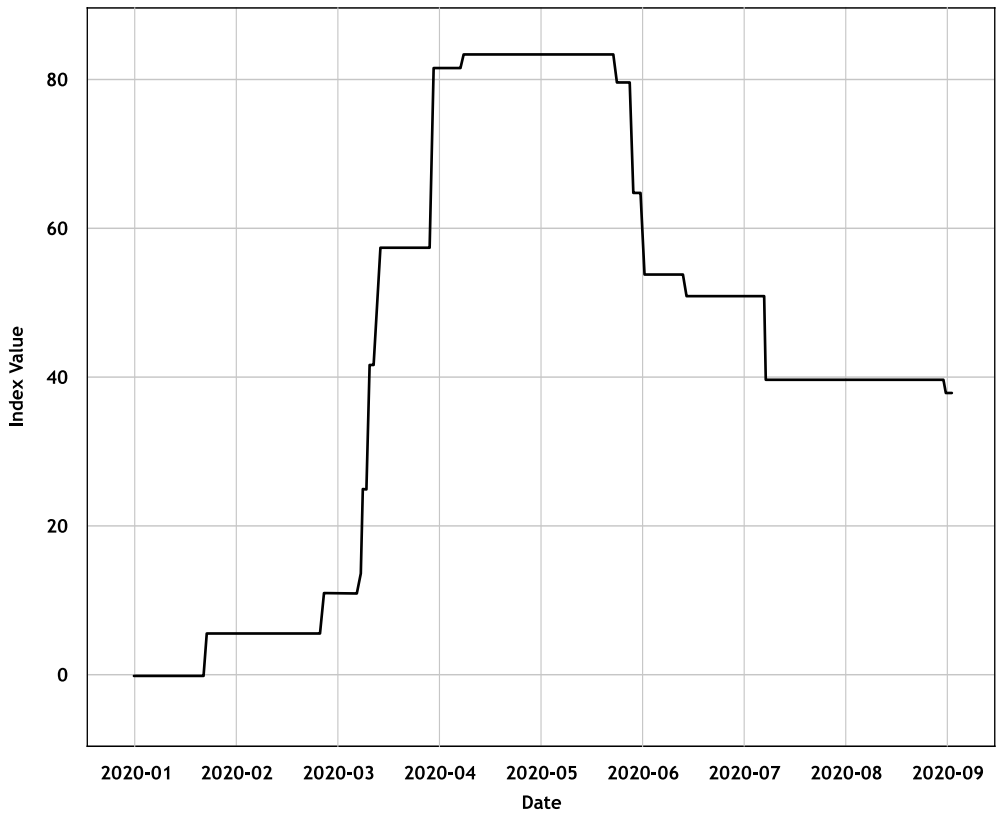

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Figure 3.1. Oxford Stringency Index for Poland
Source: Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, https://covidtracker.bsg.ox.ac.uk/

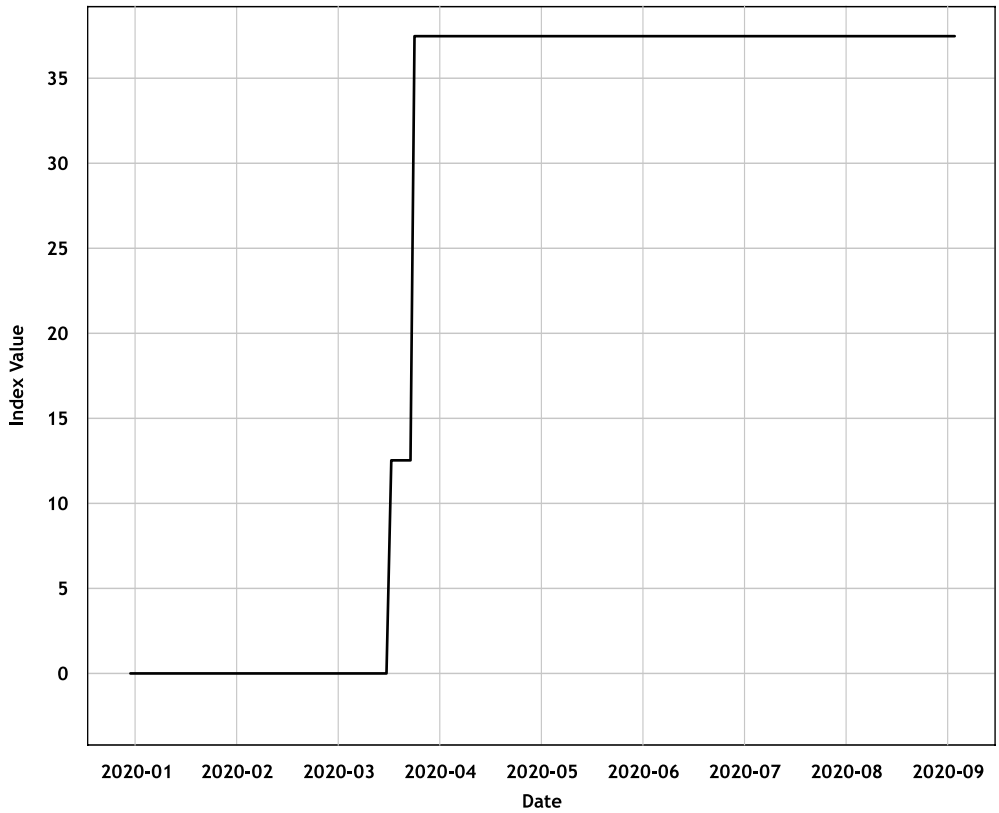

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Figure 3.2. Oxford Economic Support for Poland
Source: Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, https://covidtracker.bsg.ox.ac.uk/

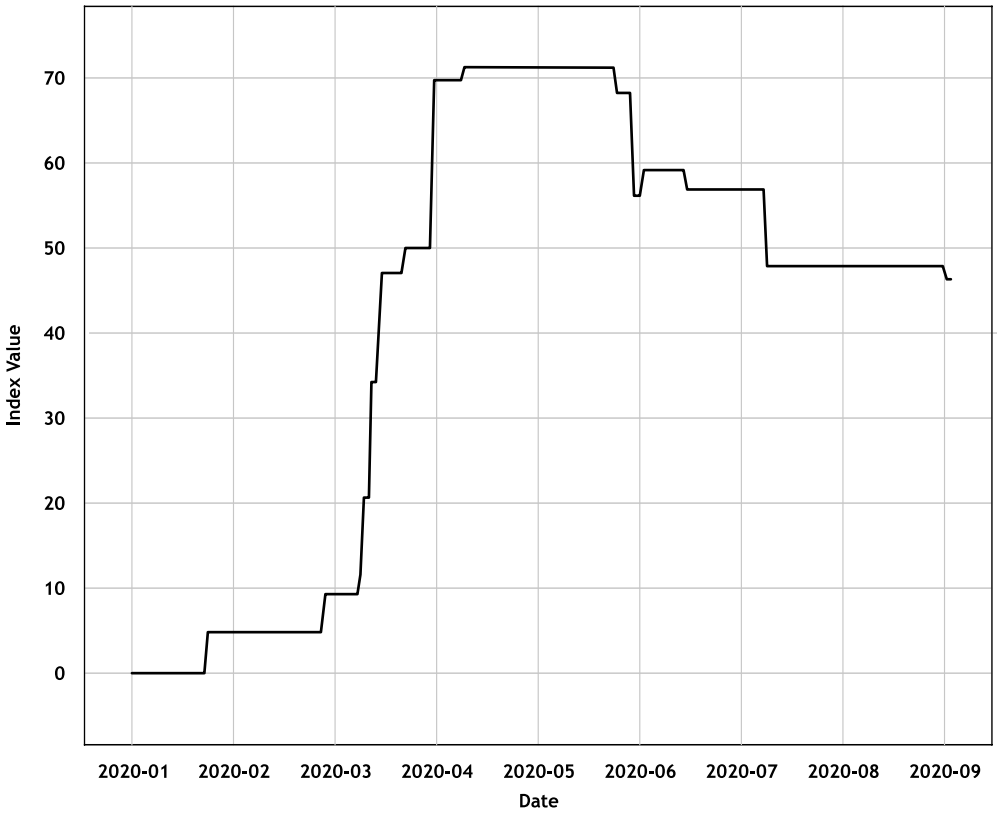

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Figure 3.3. Oxford Containment Health for Poland
Source: Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, https://covidtracker.bsg.ox.ac.uk/

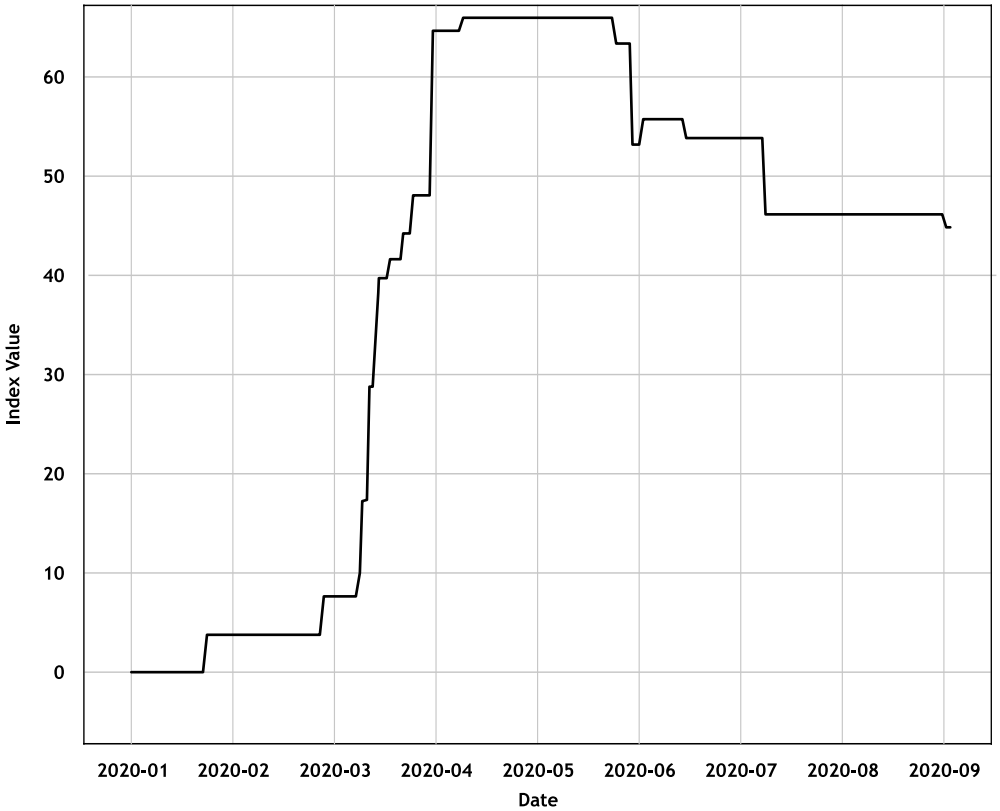

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Figure 3.4. Oxford Government Response Index for Poland
Source: Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, https://covidtracker.bsg.ox.ac.uk/

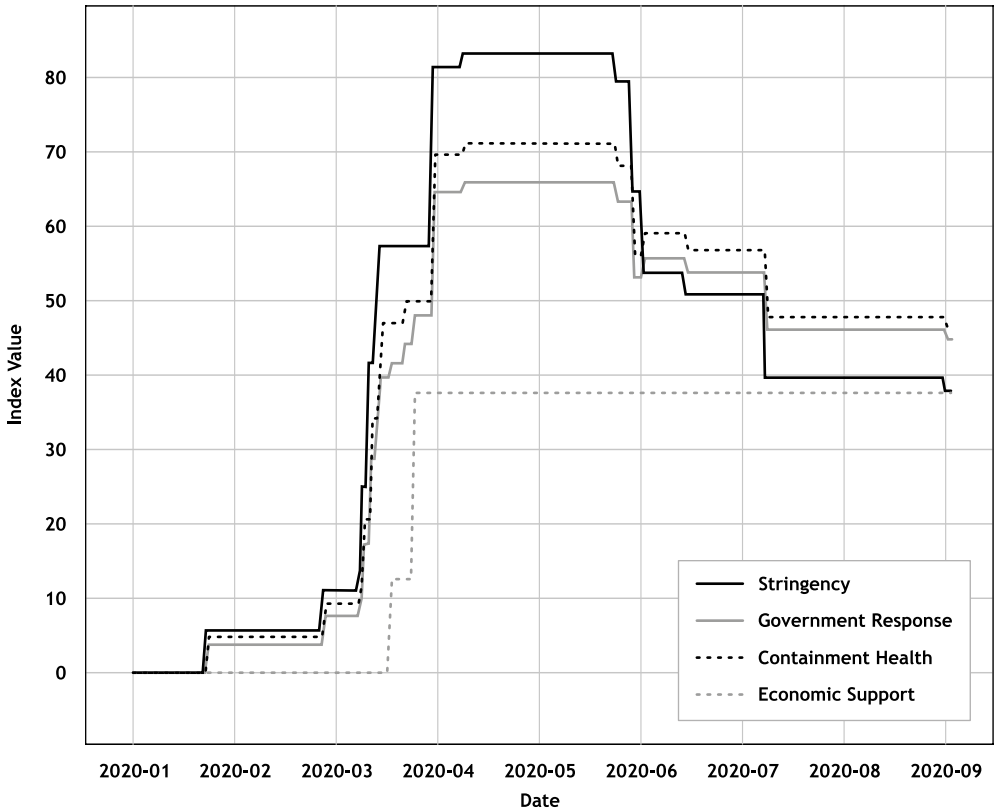

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Figure 3.5. Oxford Indecies for Poland
Source: Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, https://covidtracker.bsg.ox.ac.uk/

fall precipitously and now maintains a value less than half of what its peak was. Overall, the stringency of Covid-19 measures has decreases substantially. Indeed, as of April 16th, the Polish government outlined a four-part plan to begin reopening their economy and lessening lockdown restrictions[5]. May 4th-6th included the reopening of hotels, malls, daycares, and preschools. Shortly after, on May 18th the government allowed restaurants to reopen as well[6]. Interestingly, according to Table 2.1, Poland's stringency index average of 43.65 is almost exactly the same as the European Union (EU) average of 43.09. The EU however has the lowest average stringency index relative to North America, South America, and Asia.

The Polish government's economic response to Covid-19 has been more qualified relative to its European counterparts. As show in in Table 2.1, Poland's economic response of 25.05 is less than half of the EU average of 51.64. This may be in part due to the Polish economy's relative strength going into the pandemic. Indeed, some estimates have shown that Polish GDP is expected to fall the least among European countries. Its fiscal response was comprised of a PLN 104 billion budget expansion equivalent to 4.6 percent of GDP (IMF). Other notable measures included the financing of PLN 100 billion (equivalent to 4.5 percent of GDP) by the Polish Development Fund aimed at supporting businesses and providing necessary liquidity (IMF).

As far as monetary policy and macro financial measures go, the National Bank of Poland reduced its policy interest rates by 140 basis points to 10 basis points[7]. This marks a significant change in line with actions taken by other Western governments to bring policy reference rates to almost zero. Additionally, in order to lessen the strain on the banking sector, and provide additional liquidity, reserve requirements were reduced from 3.5% to 0.5%[8]. Similarly, the Polish National Bank has agreed to purchase 104.2 billion PLN, equivalent to 4.6% of GDP, in treasury and other government guaranteed securities. Figure 3.2 highlights the fact that Poland's economic support index has the lowest value out of all the different indices. Additionally, while substantial measures were taken towards the end of April, no further large-scale actions have taken place since then.

Poland's containment health index shown in Figure 3.3, similarly reached its peak around 71 in April. It then subsequently fell partially but has remained slightly below 50 since. Poland's average containment health index of 42.33 as show in in Table 2.1 is the lowest in magnitude among other regions however is relatively similar. The EU average of 45.15 is fairly similar. According to Figure 3.4, Poland's government response index mirrors that of its containment health very closely. Despite its directional changes over time, the magnitude of the values average from that of its European counterparts in this case is much more pronounced. Table 2.1 shows Poland's average value of 39.67 markedly lower than the EU average of 46.14.

Evaluated collectively, as shown in Figure 3.5, we observe that off all four of the indices, stringency initially maintains the highest value before dropping off slightly. The Government's response as well as containment indices share somewhat similar values and are relatively close to those for stringency. The index value for economic support lags those of the others substantially (by as much as half) compared to the other index values.

The efficacy of these policies can be broadly evaluated within the context of other European nations. Specifically, Table 2.2 highlights some of Poland's key Covid-19 statistics per million residents relative to its European peers and other large regional groups. Notably, Poland maintains lower cases and deaths per million compared to every other major region other than Asia. Within the European Union, the Poland's value for cases per million residents of 1985.22 falls substantially lower than the EU average of 4345.64. Similarly, Poland's value for deaths per million residents of 58.84 is markedly lower than the EU average of 215.86.

Entrepreneurship Response

Startup ecosystems in the world struggle through COVID-19. Amidst the pandemic, many concerns have been raised in regard to the extent of its negative economic impact on startups and small businesses. As the availability of venture capital funding decreases in light of the coronavirus, many companies within the industry are subsequently facing bankruptcy.

Globally, 41% of startups are threatened because of this e COVID-19 and Poland is not exempt from that statistic[9]. Nearly 70,000 Tech Startup Employees Have Lost Their Jobs Since March. Layoffs among tech startups reflect economic fallout of Covid-19[10]. The responsibility of preserving startup companies is now falling on governments and their willingness to mitigate the impacts through grants, loans, deferring costs, payroll support, and other measures to alleviate the investment uncertainty. Three quarters of startups have laid off full-time employees due to COVID-19 – according to a Startup Genome survey of 45 countries. And most of them have just a few months of cash reserves[11].

Poland's apportionment of funds specifically for entrepreneurship and SME's has been markedly substantial. Credit guarantees and micro loans amounting to 75 billion PLN (equivalent to 3.3% of GDP) have been allocated to Polish entrepreneurs (IMF). According to IMF, the government has also made arrangements to support self-employed workers by extending wage subsidies for at least three months. Small and Medium-Sized Enterprises are similarly protected by various provisions in the government's fiscal stimulus response.

In regard to how the Polish government has been supporting startups during the COVID-19 pandemic, there have been some programs implemented. The National Centre for Research and Development in Poland (NCBR) allocated 200 million PLN (around 50 million

Table 2.1. Average Government Response Tracker Index Values for EU and Major Regions

A verage Index Values Country List				
Country Name	Stringency Index	Government Response Index	Containment Health Index	Economic Support Index
Austria	38.5	46.84	44.12	61.83
Belgium	48.07	50.29	49.04	57.17
Bułgaria	36.91	38.56	37.28	45.59
Croatia	40.76	49.04	46.66	62.1
Cyprus	48.63	54.98	51.51	74.03
Czech Rep.	38.97	44.7	43.14	53.27
Denmark	46.92	50.96	49.91	56.69
Estonia	30.49	29.43	29.02	31.69
Finland	34.84	36.82	35.23	45.58
France	49.29	51.83	50.89	59.22
Germany	47.5	49.14	51.63	35.42
Greece	46.15	45.42	46.04	42.03
Hungary	44.51	47.92	46.88	53.64
Ireland	49.33	52.23	49.42	67.7
Italy	54.71	55.79	57.82	44.61
Latvia	38.83	42.02	41.7	43.75
Lithuania	37.12	41.75	40.6	48.11
Luxembourg	35.17	45.47	41.14	69.24
Malta	No Data	No Data	No Data	No Data
Netherlands	42.85	44.43	44.69	43.02
Poland	**43.65**	**39.67**	**42.33**	**25.05**
Portugal	52.78	53.37	54.57	46.76
Romania	45.33	46.06	43.76	58.72
Slovakia	No	Data	No Data	No Data
Slovenia	38.41	43.21	42.77	45.62
Spain	50.93	51.8	50.39	59.56
Sweden	28.94	34.36	32.47	44.78
U.K.*	50.67	53.51	50.96	67.58
EU Avg.	**43.09**	**46.14**	**45.15**	**51.64**
NA Avg.	**52.13**	**47.82**	**50.46**	**33.35**
SA Avg.	**58.07**	**52.59**	**54.98**	**39.42**
Asia Avg*	**52.38**	**51.52**	**54.66**	**34.25**

*U.K. is no longer an EU member state
Source: University of Oxford
Last Updated: 9/16/20

Source: Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, https://covidtracker.bsg.ox.ac.uk/

Table 2.2. Cases/Deaths per Million and Tests per Thousand for EU and Major Regions

Country List			
EU Country	**Cases Per Million**	**Deaths Per Million**	**Tests Per Thousand**
Austria	3857.7	84.05	153.21
Belgium	8171.19	856.8	230.79
Bułgaria	2621.59	105.92	67.95
Croatia	3349.11	56.03	57.72
Cyprus	1758.19	25.12	No Data
Czech Rep.	3632.09	44.45	101.45
Denmark	3475.19	109.28	522.44
Estonia	2051.96	48.25	133.81
Finland	1574.71	61.18	151.08
France	6053.05	474.91	No Data
Germany	3146.94	111.81	160.37
Greece	1317.27	30.03	108.7
Hungary	1496.84	67.7	58.76
Ireland	6389.29	361.9	200.37
Italy	4796.25	589.35	99.35
Latvia	785.71	18.56	151.56
Lithuania	1264.38	31.96	259.42
Luxembourg	11636.23	198.09	656.36
Malta	5557.83	36.24	469.2
Netherlands	4942.96	364.7	106.94
Poland	**1985.22**	**58.84**	**76.46**
Portugal	6376.67	183.88	223.62
Romania	5473.53	220.19	109.68
Slovakia	1056.48	6.96	72.07
Slovenia	1845.66	63.01	89.09
Spain	12900.65	641.73	167.78
Sweden	8648.64	579.35	No Data
U.K.*	5512.59	613.74	251.74
EU Avg.	**4345.64**	**215.86**	**187.2**
NA Avg.	**6886.99**	**214.14**	**99.61**
SA Avg.	**10643.14**	**376.16**	**46.2**
Asia Avg**	**1638.3**	**16.35**	**32.27**

*U.K. is no longer an EU member state
** Some values are likely due in part from under-reporting
Source: University of Oxford
Last Updated: 9/16/20

Source: University of Oxford, Our World in Data Corona Virus Statistics, Oxford Martin School, https://ourworldindata.org/coronavirus#citation

USD) to help Polish startups to combat the COVID-19 crisis. This money is based on a grant system where enterprises (SMEs and large companies), entrepreneurs, and scientist can apply with their innovated solution for the COVID-19 crisis and can earn up to 50 million PLN. The NCBR's key areas for support are diagnostics, treatment, and prevention with 125 million PLN being allocated to less developed areas and 75 million PLN being allocated in the most developed in that part of Europe the Mazowieckie Voivodeship[12].

In addition to the above, from July 30 to August 7, 2020, Mazovian entrepreneurs could submit applications for subsidies from the European Union for operating purposes and maintaining financial liquidity. For this purpose, the local government of Mazovia has allocated over PLN 66 million (USD 17 million) under the Regional Operational Program of the Mazowieckie Voivodship 2014–2020. Mostly affected by the COVID-19 companies benefited from the aid: micro-enterprises (including the self-employed) and small companies operating in the following industries: tourism, hotel, catering, exhibition and fair and art. Importantly, the decision on granting the subsidy was made by minimum level of decline in sales revenue by at least 50 percent in June 2020 compared to June 2019, not the order of application. Co-financing covers the immediate, urgent needs of the enterprise for a maximum of 3 months. Companies can allocate funds, among others for: employee remuneration, coverage of public-private and commercial liabilities, outstanding invoices, costs of using infrastructure or purchasing goods. According to Mazowieckie Marshal Office, so far 1276 applications have been positively verified for a total amount of: PLN 48,196,049.23 (ca. USD 12 million).

Later this year another similar competition was scheduled in Mazovia, targeting other sectors of economic activity (than in the first competition), which also largely experienced the negative effects of Covid-19. Most of other Polish Voivodships prepared similar programs actively supporting startup ventures and small and medium-sized enterprises.

At the same time, Poland ranks 40th in the world in „ease of doing business", according to the World Bank's *Doing Business Survey* in 2020. It was ranked 33rd in the world in 2019. Examining specific survey components, Poland ranks first in the world in „trading across borders", which is an important accomplishment regarding its competitiveness internationally. A growing number of partnership-based programs supporting global expansion of Polish startups, including those managed jointly with Governor's Office of Economic Development (GOED) in Nevada, shows the high level of internationalization among entrepreneurs in Poland.

An example of the successful international collaboration of Polish regions is the Nevada-Lubelskie Acceleration Bridge (NLAB), which is a unique acceleration program for companies from the Lubelskie Region run in cooperation with GOED, under the Nevada Global platform[13].

The main objective of the NLAB program is to support companies from Lubelskie in the process of scale up within internationalization businesses on the USA market and provide the whole variety of soft-landing services. In 2015 the Lubelskie region signed a Letter of Intent with the Nevada State (USA) – the NLAB program is one of the activities run in the frames of this cooperation and the whole program was finalized in a joint agreement between the State of Nevada and Lubelskie Voivodship in October 2017.

The Lubelskie Region has already completed 4th editions of the program (the last one in January 2020). It is worth underlining that 5 out of 20 companies who went to the USA successfully infiltrated the US market by setting up their businesses in Nevada (not resigning from their business in the Lubelskie Region). The intensive course both in Poland and then the acceleration process in Nevada, including contacts they made during their stay there, made it possible for them to expand their activity on the US market. Even the companies who did not win the competition confirmed that program broadened their minds and encourage them to expand globally[14].

But despite the above examples, Poland is ranked particularly low in terms of starting a business, which is an important indicator that is related to entrepreneurship in the country[15]. We think that this should highlight the policy importance of targeting the economic and fiscal response by the government to SMEs and more broadly entrepreneurship during the pandemic. Local governments can surely help with this policy objective.

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Endnotes

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Ministerstwo Nauki i Szkolnictwa Wyższego

Projekt digitalizacji obiegu dokumentów oraz unowocześnienia strony internetowej czasopisma Przegląd Organizacji w celu usprawnienia procesu wydawniczego oraz zwiększenia stopnia umiędzynarodowienia jest współfinansowany przez Ministerstwo Nauki i Szkolnictwa Wyższego w ramach programu Wsparcie dla Czasopism Naukowych – umowa nr 234/WCN/2019/1.

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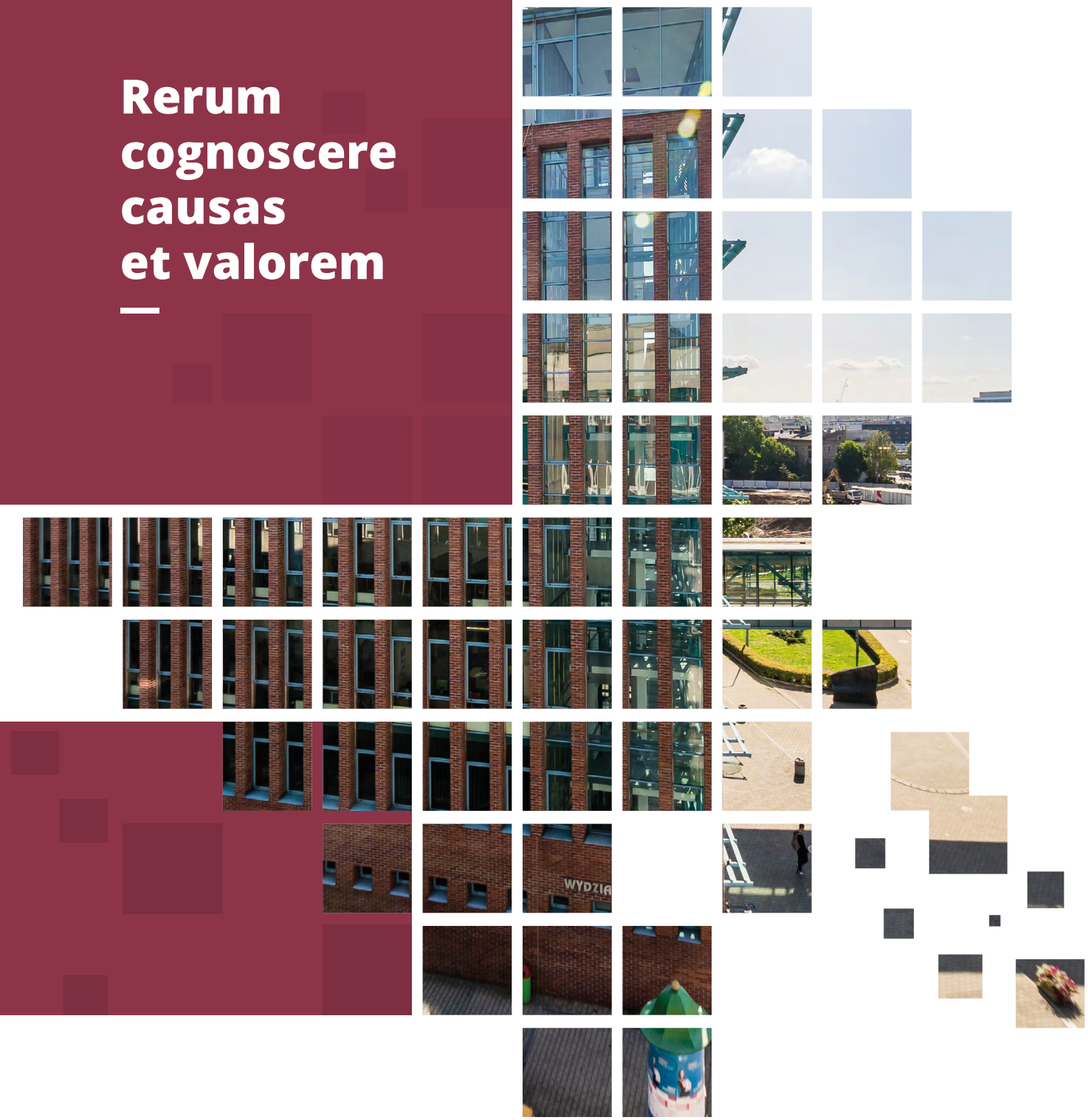
Rerum cognoscere causas et valorem



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