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OCCUPATIONAL TASKS AND WAGE INEQUALITY. CASE OF MUNICIPAL COMPANY IN POLAND

Introduction

Literature review indicates number of factors affecting changes in business environment. The majority of them are related to technological innovations that promote automation, robotization and the development of a digital economy (mobile devices, 3D printing, internet of things, or Big Data), changes in the global division of labor – offshoring popularization, changes in the organization of market firms and institutions, demographic changes, and changes in consumption models [OECD, 2017b: 12]. On the one hand, these factors result in a faster pace of developing economic sectors based on a knowledge economy in the last years (despite the fact that the process started several decades ago). On the other hand, they have a major impact on the content of work in particular positions and groups of positions related to professional specialties, and hierarchical levels, thus influencing contemporary labor markets. For example, according to the representative analyses of modern economies, global access to the internet over the last 20 years has risen from 4% to 40%, while developing economies make use of digital technologies practically in all economic sectors – e-commerce, banking and agriculture [OECD, 2017a]. Advances in robotics, artificial intelligence and machine learning make machines work better than people in various work-related activities, even including demanding cognitive skills. Using current technologies, in the USA it is possible to automate less than 5% of all occupations, and about 60% of all jobs have at least 30% of tasks subject to automation [Manyika et al., 2017: 8]. In addition to that, the use of modern technologies in social and economic processes affects innovative products

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and services, business processes and models [Blaschke et al., 2017: 121–136] as well as corporate structures [Snow et al., 2017: 2–13]. Such transformation processes in economies, sectors and enterprises create demand for new employee skills, favor cognitive and social skills [Deming, 2017], also resulting in changes in demand for specific types of jobs. In the context of labor markets of individual economies and selected sectors, literature links these changes to the job polarization, "in which 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: 5]. But the issue of job polarization on firm-level is more or less absent in the empirical literature [Heyman, 2016]. Moreover, the substantial literature of the subject has not taken into account municipal enterprises in this process.

Thus, the paper aims at investigating changes in share of particular types of jobs (routine manual, non-routine manual, routine cognitive, and non-routine cognitive) and differences in pay scales with regard to particular types of tasks in one of municipal companies in Poland. The study employs firm-level data covering over 2,200 job placement observations obtained from two time points, which are end of 2009 (1,137 obs.) and end of 2018 (1,172 obs.). Research refers to municipal enterprises and therefore indirectly concerns the public sector, which provides public infrastructure regarded as the public intermediate input [Suga, Tawada, 2007]. From the perspective of this objective, the paper presents a review of literature for the purpose of theoretical and methodological interpretation, and it presents the methodology of empirical research as well as its results and conclusions.

1. Job tasks and wage inequality

1.1. Types of jobs

There is a rich literature on changes in the content of work as a result of conditions in the environment. In principle, analyses conducted in this area refer to the technical advancement of work processes, resulting in such phenomena as higher educational levels required from employees and higher employee skills indispensable to performing specific work station functions, measured by educational levels and compensation levels, educational bonuses and employee discounted wages during the entire professional career [Esposto, 2008]. The conducted study indicates that 19th century technological advancement resulted in the increased productivity of employees possessing relatively low skills – skilled craftsmen were replaced by lower-skilled workers (unskill-biased technical change) [Autor et al., 2003]. Simultaneously, the development of information and communication technologies was accompanied by a contrary trend – a relative increase in the productivity of skilled workers

performing functions based on abstract thinking, creativity, and problem solving (skill-biased technical change) [Autor, Acemoglu, 2011]. The conducted analyses indicated increased demand for experts and talented employees, especially in the area of artificial intelligence and information analysis (talent-biased technical change) [Brynjolfsson, McAfee, 2014].

The analyses in this field allowed for identifying a phenomenon referred to as the polarization of the labor force – different expectations with regard to skills depending on the types of tasks. In principle, polarization relates to higher productivity and a decrease in real prices of information and communication technologies, or, in a broader sense, the prices of symbolic information processing devices [Autor et al., 2003]. This process, then, refers to technical changes affecting the labor market, and, more precisely, the content of work of particular positions. Author and Acemoglu propose the division of tasks on the basis of the content of work criterion. Thus, the following jobs can be distinguished in the group of tasks performed within particular positions [Autor, Acemoglu, 2011: 1076–1079]:

- routine jobs including manual and cognitive tasks,
- non-routine jobs including manual and abstract tasks.

Routine jobs relate to sequential and structured activities based on rules and procedures. They are characteristic of numerous workman and administration and office tasks, especially manual and clerical jobs, which require moderate skills such as bookkeeping, office work, repeated production activities, and work monitoring. Because the key tasks related to these activities must strictly adhere to specific procedures, they can (and more frequently are) codified in computer software and performed by machines (or sent electronically – commissioned to internal companies – to other entities in the business environment or overseas outlets through outsourcing and offshoring).

Non-routine jobs include cognitive and manual tasks. Cognitive jobs consist in performing activities based on problem solving, intuition, persuasion and creativity, and they relate to specialized, managerial and technical posts in the field of law, medicine, sciences, engineering, design and management. Efficient employees in such fields are highly educated and possess analytical abilities. These analytical tasks complement computer technology activities because analytical tasks, problem solving and creativity heavily rely on the assessment of input data, the existence of a given problem and the need for intellect-based considerations.

Non-routine manual jobs mainly refer to the ability of adapting manual activities to specific situational changes, including visual and linguistic recognition, direct interaction, and interpersonal and environmental adaptation. Such jobs are not subject to automatization – it would not be possible to present the manner of a machine's functioning using multivariate instructions. Also, such jobs are not offshored because they must be performed in person and require flexible behavior depending on

situational factors. They do not require more than secondary education, or lasting experience in performing such tasks.

At the next stage of their research the authors analyzed work stations (excluding the agricultural and military sectors) recorded in U.S. statistics (classification O*Net), identifying four groups of relatively uniform positions in terms of the content of work (see Table 1).

Table 1. Typology of jobs

Type of job	Groups of positions	Main function of groups of positions
Non-routine cognitive	Managers, specialists, technicians	Problem solving, assessment of information, creativity
Routine cognitive	Salespersons, administration and office staff	Simple information-related tasks: organizing, storing, retrieving and manipulating information
Routine manual	Production, repair and craftsman tasks	Manual activities based on rules and algorithms
Non-routine manual	Service sector	Manual tasks requiring interpersonal and environmental adaptability

Source: author's research based on [Autor, Acemoglu, 2011: 1077].

The analysis of the share of particular groups of positions in the workforce in the U.S. in 1979–2012 points to a rapid increase in the group of specialist, technical and managerial posts, accompanied by a decreasing share of production, craftsman and operating positions. For example, the share of posts (salespersons, office workers, production staff and operators) requiring moderate skills in 1979 reached the level of 60%, in 2007–49%, and in 2012–46% [Autor, 2015: 14]. The analyzed period also recorded higher employment levels in service positions. The conducted research study confirms the existence of the polarization of the work force in the U.S. economy [Autor, Acemoglu, 2011: 1077]:

- increased number of specialist, managerial and technical positions, where work is non-routine and cognitive,
- increased number of service positions, where work is non-routine and manual,
- decreased number of administration and office staff, salespersons and production workers, where work is routine.

The polarization effect has been confirmed for OECD countries. It was pointed out, in particular, that advanced production processes lead to an increased number of non-routine positions (low and high wages for service providing positions) and reductions in staff engaged in routine work (production, administration and office jobs) [Goos et al., 2009: 31]. Similar conclusions were drawn from an analysis of the impact of IT technologies on compensation levels in OECD economies. It was found out, in particular, that IT technologies are complementary in relation to analytical non-routine tasks,

substitutionary in relation to routine jobs, and they have no impact on selected non-routine manual tasks (e.g., cleaning, gardening, child care, etc.) [OECD, 2017a: 9].

1.2. Wage inequality

Changes in the types of jobs in particular economic sectors are analyzed in the context of individual compensation, which facilitates a diagnosis of productivity as well as wage inequalities in particular types of jobs along with employee skills and groups of positions [Piketty, 2014]. In general, the conducted analyses point to increasing wage inequalities [Barth et al., 2014] and diversified individual wages for similar positions (professional and managers, skilled white-collar, unskilled white collar, skilled blue collar, unskilled blue collar) within sectors [Akerman et al., 2013: 214–219]. Globally, average pay tends to be higher among low-skilled workers in the public sector compared to low-skilled workers in the private sector; the converse being true for high-skilled workers [Anxo, Ericson, 2012: 26]. Moreover, there has been diagnosed strong and increasing positive relationship between wage inequality and city size [Lindley, Machin, 2014] and that high and low-skilled workers are increasingly segregated across cities [Diamond, 2015].

An analysis of individual wage levels in UK firms indicates that wage inequality between positions requiring high, moderate and low skills is greater in larger companies. Simultaneously, wage inequality between moderate and low skilled workers is not related to company size, and the existing inequality is gradually reduced. The analysis also focused on employee wages in three groups of positions. The first group comprised low-skilled workers, where work is routine and controlled by supervisors, e.g., cleaning staff and unskilled workers. The second group comprised less routine jobs, requiring specific administrative, practical, craftsman or technical skills acquired as a result of previous experience and qualifications. These jobs involved less routine activities and specialist support, and they required direct contacts with customers, e.g., administration assistant, driver and operator. The third group comprised positions which required broad and specialist administrative, technical and craftsman skills and experience in order to perform complex and specialized tasks including staff supervision and advisory activities, e.g., technicians and skilled workers [Mueller et al., 2015: 7].

The above research studies are consistent with other representative works which indicate that wage levels for routine jobs are relatively lower [Autor et al., 2003] and that gaps between the highest and lowest wage become wider [Autor et al., 2003; Autor, Acemoglu, 2011]. With regard to the highest wage levels in the economy, it was found out that inequalities mainly relate to jobs which involve innovativeness – entrepreneurs, professional engineers, scientists as well as managers. Innovativeness affects the earnings of managers and company presidents [Frydman, Papanikolaou, 2015] as well as company owners [Aghion et al., 2018].

2. Research methodology

Research study was conducted in one of the municipal companies in Poland. The company is organized as publicly-owned Joint Stock Company, and as the local service provider, has tariffs and commercial revenues. It is autonomous organization owned by municipalities, used to produce and deliver local public services outside the local bureaucracy [Voorn et al., 2017: 820]. The study employs data obtained in the years 2009 and 2018.

The study aimed to:

- identify the changing share of particular types of jobs according to the adopted classification [Autor et al., 2003; Autor, Acemoglu, 2011], and
- analyze individual pay scales from the perspective of the identified types of positions.

The above research tasks were performed on the basis of three major internal sources of information: the scopes of responsibilities of organizational positions, individual pay scales, and the results of interviews with executive staff and employees in particular posts.

The procedures were based on document analysis, structured interviews, team work methods, and classification technique. The two first methods were employed in the process of collecting information and identifying the factors, which determine the degree of innovativeness and creativity related to particular positions. The remaining methods were used to qualify and analyze assessments and, in particular, to identify the types of thinking (routine, semi-routine, analytical, synthetic and creative) employed in performing work functions, all of this leading to assigning particular organizational positions to the identified types of jobs, i.e., routine manual, non-routine manual, routine cognitive, and non-routine cognitive.

The first task was to review organizational posts based on their particular types (administration and office, workman), structure (organizational units) and function (operational/core activity, support activity and managerial activity). A significant reason for adopting this classification was the need for identifying two types of jobs: manual and cognitive. The structural and functional classification, on the other hand, was necessitated by the verification of the hypothesis concerning different shares of particular groups of jobs in the analyzed periods, resulting from the rank of tasks (functions) performed in the company, especially from the perspective of customer value. The next stage consisted in conducting interviews aimed at collecting information on the determinants of the degree of innovativeness and creativity of organizational posts. Interviews with the heads of all selected organizational units and employees were preceded by a review of the formal scopes of relevant responsibilities,

verified during interviews with employees. Reviews were conducted in two periods: October-December 2009, and January-March 2018.

Interviews were based on checklists – forms (worksheets) for administration and office posts as well as workman positions. The structure of the sheets were composed of data sheets, registration of key elements of responsibilities (functions – tasks), and identification of innovativeness and creativity drivers. Interview sheets and the collected organizational documentation (organizational charts, formal job descriptions) were a basis for the next stage conducted by a team of experts (composed of company executives and external experts), focused on the identification of the degree of innovativeness and creativity. The above procedures allowed for assigning particular organizational posts to one of the four categories of jobs: routine manual, non-routine manual, routine cognitive, and non-routine cognitive, which was based on the adopted characteristics of particular organizational posts (see Table 2). Employees occupying particular organizational positions were then referred to individual pay scales in the years 2009 and 2018.

Table 2. Description of criteria for grouping organizational posts

	Administration and office posts	Workman posts
Routine	Routine cognitive. Simple information-related tasks – organizing, storing, retrieving and manipulating information. Moderate level of initiative and ingenuity. Work (activities, operations) based on strict instructions, code of labor, technological processes and supervisors' instructions. Routine thinking.	Routine manual. No initiative or creativity required. Work (activities, operations) based on strict instructions, code of labor, technological processes and supervisors' instructions. Routine thinking.
Non-routine	Non-routine cognitive. Work involves problem solving, information assessment and creativity. It requires initiative and ingenuity. Work involves interpretation of phenomena and processes, and adapting existing solutions to a company's current needs and potential. Research work is required as well as the testing of new solutions. Analytical, synthetic and creative thinking.	Non-routine manual. Moderate initiative and ingenuity. Work involves independent choice of implementing techniques. Semi-routine thinking.

Source: own study.

3. Empirical results

3.1. Change of types of jobs in the analyzed company

The results of empirical research in the analyzed periods show changes of the share of particular posts in the total number of employed staff (see Table 3 and Figure 1). The percentage of routine jobs is relatively lower, with greater changes in the group of workman tasks (from 49.52% to 16.72%) than in administration and office posts

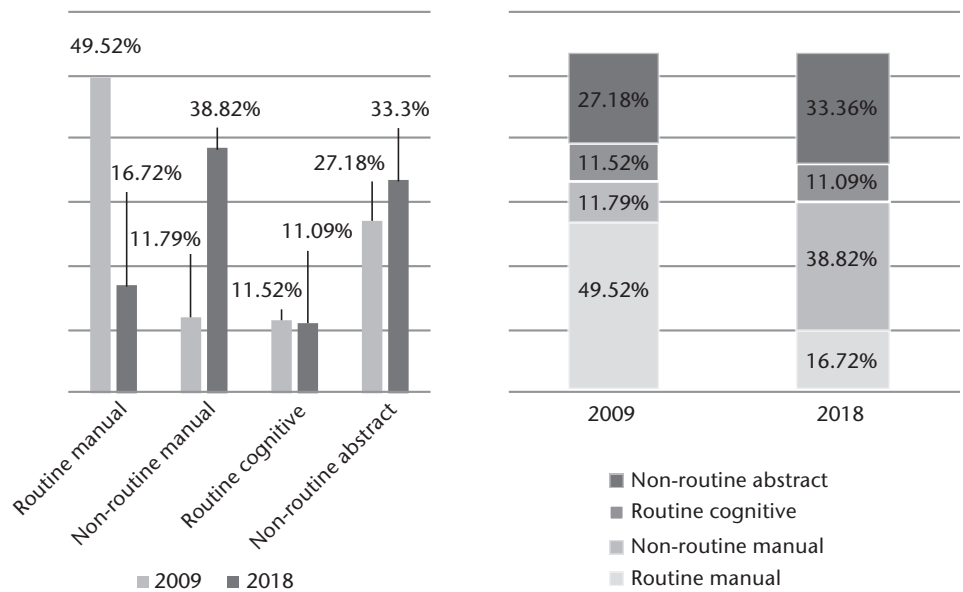
(11.52% – 11.09%). Simultaneously, the percentage of non-routine jobs increases, with greater changes in workman tasks (from approx. 12% to approx. 39%) than in the group of administration and office jobs (from approx. 27% to approx. 33%).

Table 3. Share of particular types of jobs in the total number of jobs and the identified activity areas in the analyzed period (%)

Types of jobs	Total		Operational activity		Supporting activity		Management activity	
	2009	2018	2009	2018	2009	2018	2009	2018
Routine manual	49.52	16.72	59.59	15.80	31.13	26.75	–	–
Non-routine manual	11.79	38.82	4.44	43.18	45.75	39.92	–	–
Routine cognitive	11.52	11.09	11.15	8.56	6.60	14.40	26.37	23.53
Non-routine cognitive	27.18	33.36	24.82	32.45	16.51	18.93	73.63	76.47
Number	**1137**	**1172**	**834**	**829**	**212**	**243**	**91**	**102**

Source: own study.

Figure 1. Change of the share of particular types of jobs in the total number of jobs in 2009–2018

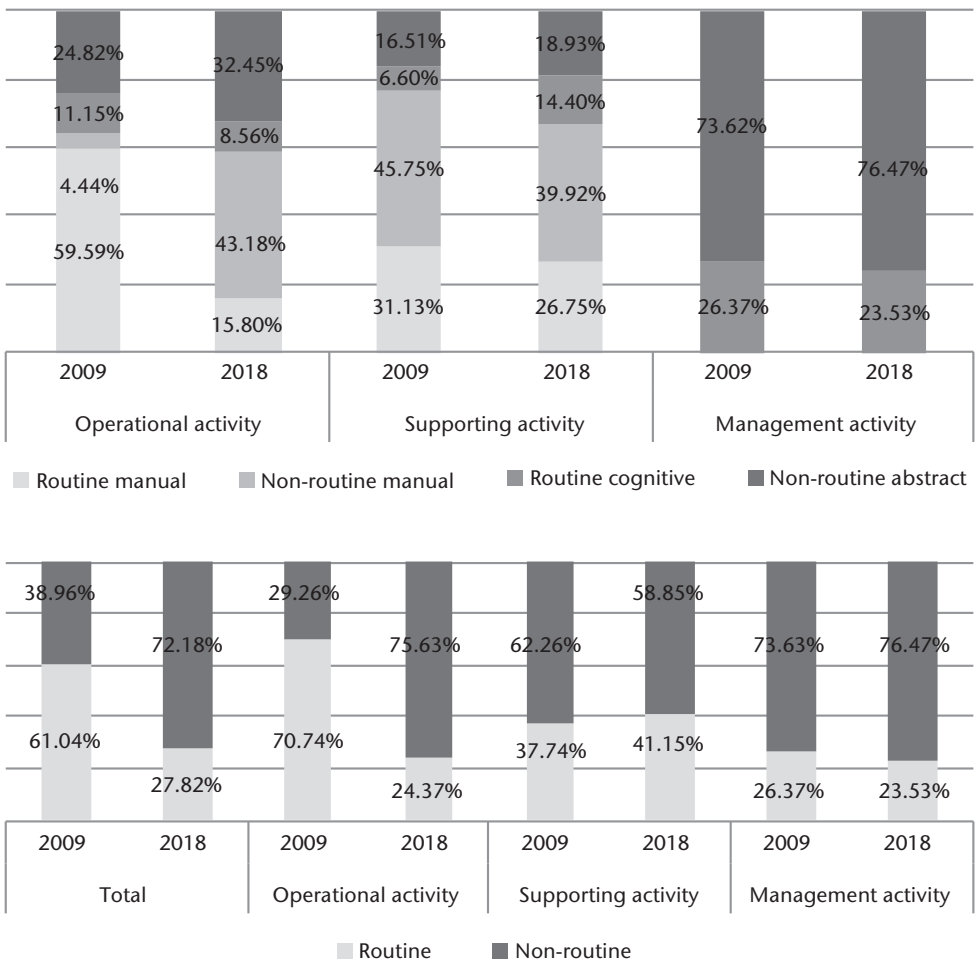


Source: own study.

The study analyzes the percentage of particular types of tasks within operational, supporting and managerial activities. The presented data (see Table 3 and Figure 2)

indicate that the greatest changes in the types of posts take place in core activities. It mainly refers to the decreasing share of routine tasks in favor of non-routine activities both in workman and administration and office positions. In particular, there is a decrease in the share of routine manual tasks from approx. 60% to 16%, and cognitive jobs from 11% to approx. 8% of the total number of jobs related to core activities. A similar change is recorded for the share of non-routine tasks, especially in workman jobs (an increase from 4% to approx. 43%) and administration and office cognitive posts (from 25% to 33%).

Figure 2. Changes of the share of particular types of jobs in the number of jobs in activity areas in the years 2009 and 2018



Source: own study.

The analysis of support activities leads to interesting results: a decrease in the share of routine manual tasks (from 31% to 27%), accompanied by a decrease in the share of non-routine manual jobs (from 46% to 40%), and an increase in the share of non-routine cognitive jobs (from 16% to 19%), along with an increase in the share of routine cognitive jobs (from 7% to 14%). Slight changes are recorded in the share of managerial posts; the share of routine cognitive tasks decreases from 26% to 24% in favor of non-routine cognitive jobs (from 74% to 76%).

The collected empirical data allowed for identifying the share of routine and non-routine tasks in the total number of jobs and in the types of activities: core, support and managerial. The analysis indicates that the increased complexity of tasks in the company was mainly conditioned by the increased complexity of core activities and, to a lesser extent, by managerial tasks. Interestingly, the complexity of support activities in the analyzed period decreased (see Figure 2).

3.2. Compensation vs types of jobs

The analyzed period recorded an increase in wage levels by approx. 36%. However, administration and office staff (an increase of 35% in routine tasks and 36.1% for non-routine jobs) were granted higher pay rises than workman employees (an increase of 32% for routine and 26.3% for non-routine tasks) (see Table 4). A different trend was recorded for the types of activity (see Table 5).

Table 4. Differentiation indexes for wages vs types of jobs in analyzed company

	Total		Routine cognitive		Non-routine cognitive		Routine manual		Non-routine manual	
	2009	2018	2009	2018	2009	2018	2009	2018	2009	2018
$\bar{x}$ (2009 = 100)	100.0	136.6	100.0	135.0	100.0	136.1	100.0	132.0	100.0	126.3
Q1/$\bar{x}$	0.87	0.86	0.86	0.88	1.00	0.82	0.92	0.93	0.95	0.91
Me/$\bar{x}$	0.97	0.95	0.98	0.99	1.16	0.92	0.99	1.00	1.02	1.02
Q3/$\bar{x}$	1.08	1.06	1.15	1.08	1.33	1.11	1.09	1.07	1.07	1.08
Q4/$\bar{x}$	2.27	2.84	1.62	1.46	2.30	2.41	1.39	1.29	1.17	1.31
Vs	0.21	0.24	0.19	0.15	0.24	0.27	0.12	0.11	0.10	0.11
Vq	0.11	0.10	0.14	0.10	0.15	0.16	0.08	0.07	0.06	0.09
max/min	4.61	5.00	3.01	2.34	3.79	4.04	2.19	1.65	1.79	1.73
Number	**1137**	**1172**	**131**	**130**	**309**	**391**	**563**	**196**	**134**	**455**

Source: own study.

Table 5. Differentiation indexes for activity areas and types of jobs in the analyzed period

	Indexes	Operational activity		Supporting activity		Management activity	
		2009	2018	2009	2018	2009	2018
Routine manual	$\bar{x}$ (2009 = 100)	100.0	131.0	100.0	134.6	–	–
	Q1/$\bar{x}$	0.92	0.94	0.85	0.91	–	–
	Me/$\bar{x}$	0.99	1.00	1.04	0.98	–	–
	Q3/$\bar{x}$	1.08	1.06	1.12	1.09	–	–
	Q4/$\bar{x}$	1.35	1.30	1.40	1.28	–	–
	Vs	0.12	0.10	0.17	0.13	–	–
	Vq	0.08	0.06	0.13	0.10	–	–
	max/min	2.14	1.65	2.03	1.59	–	–
	Number	497	131	66	65	–	–
Non-routine manual	$\bar{x}$ (2009 = 100)	100.0	128.6	100.0	133.2	–	–
	Q1/$\bar{x}$	0.96	0.91	0.95	0.95	–	–
	Me/$\bar{x}$	1.03	1.00	1.02	1.01	–	–
	Q3/$\bar{x}$	1.09	1.08	1.07	1.05	–	–
	Q4/$\bar{x}$	1.13	1.34	1.16	1.16	–	–
	Vs	0.11	0.11	0.09	0.07	–	–
	Vq	0.06	0.09	0.06	0.05	–	–
	max/min	1.67	1.73	1.62	1.42	–	–
	Number	37	358	97	97	–	–
Routine cognitive	$\bar{x}$ (2009 = 100)	100.0	137.7	100.0	115.7	100.0	133.4
	Q1/$\bar{x}$	0.87	0.89	0.86	0.86	0.89	0.93
	Me/$\bar{x}$	0.99	0.99	1.02	0.94	1.02	1.00
	Q3/$\bar{x}$	1.11	1.07	1.07	1.09	1.17	1.11
	Q4/$\bar{x}$	1.45	1.42	1.36	1.44	1.25	1.24
	Vs	0.17	0.14	0.17	0.18	0.20	0.14
	Vq	0.12	0.09	0.10	0.12	0.14	0.09
	max/min	2.24	1.80	1.75	1.86	2.49	2.10
	Number	93	71	14	35	24	24
Non-routine cognitive	$\bar{x}$ (2009 = 100)	100.0	132.3	100.0	137.1	100.0	147.3
	Q1/$\bar{x}$	0.84	0.83	0.89	0.84	0.89	0.83
	Me/$\bar{x}$	0.95	0.92	0.98	0.94	0.96	0.97
	Q3/$\bar{x}$	1.12	1.06	1.10	1.05	1.09	1.11
	Q4/$\bar{x}$	1.97	2.55	1.43	1.70	1.62	1.63
	Vs	0.24	0.27	0.18	0.22	0.23	0.23
	Vq	0.15	0.13	0.11	0.11	0.10	0.15
	max/min	3.79	4.04	2.08	2.44	2.80	2.98
	Number	207	264	35	49	67	78

Source: own study.

The highest increases were recorded for non-routine cognitive managerial posts (47.3%) and support activities (37.1%) as well as routine cognitive operational activities (37.7%). The lowest pay rises were recorded for routine cognitive support tasks (15.7%) and in operational activities related to manual and non-routine jobs (28.6%), and routine jobs (31%).

Relative wage differences measured by standard deviation (Vs) rose for the total number of staff (0.21–0.24) and in non-routine tasks – both cognitive (0.24–0.27) and manual (0.10–0.11). When the functional criterion is considered, it turns out that the indicator in question is at a relatively high level for non-routine cognitive tasks in all types of activity. Moreover, the value of the indicator rises for non-routine cognitive tasks in core activities (0.24–0.27) and support activities (0.18–0.22) as well as in the group of non-routine manual jobs in core activities (0.06–0.09). The indicator in the analyzed period decreases for routine manual tasks in core activities (0.12–0.1) and support activities (0.17–0.13), as well as for routine cognitive tasks in core activities (0.17–0.14) and managerial tasks (0.2–0.14). Simultaneously, the use of the changeability coefficient based on the quartile deviation (Vq) indicates an increase in relative wage inequality in non-routine jobs – both cognitive (0.15–0.16) and manual (0.06–0.09) classified as core activities (0.24–0.27 and 0.06–0.09, respectively). The lower value of the indicator is recorded for the total number of jobs (0.11–0.10) and in the group of routine manual tasks (0.08–0.07) in core activities (0.08–0.06) and support activities (0.13–0.1) as well as routine cognitive jobs (0.14–0.1), especially in core activities (0.12–0.09) and managerial tasks (0.14–0.09).

In addition to that, the analyzed period is characterized by an increase in wage inequalities in the total number of jobs (highest and lowest wages) from 4.61 to 5.00, while wage inequality decreases in all the groups of positions with the exception of non-routine cognitive jobs (from 3.79 to 4.04). In core activities wage inequality rises for non-routine tasks and decreases for routine jobs. In support activities the value of the indicator rises for cognitive jobs – for routine tasks (1.75–1.86) and non-routine tasks (2.08–2.44), while it decreases for manual jobs – both routine (2.03–1.59) and non-routine (1.62–1.42). In the company's managerial activities wage inequality rises for non-routine cognitive tasks (2.8–2.98) and decreases for routine cognitive jobs (2.49–2.1).

Conclusion

The paper identifies changes in the share of particular types of jobs in one of municipal companies in Poland. It also presents changes in wage inequalities related to the different types of tasks. Although the article concerns large and growing literature, which documented polarization of work, it is difficult to refer the conducted

analyses to other research studies in Poland with regard to municipal or commercial companies. However, the analyses conducted in the years 2009 and 2018 lead to several general conclusions. There is a significant change between the two analyzed years with regard to the content of work in particular positions in terms of the innovativeness and creativity of performed tasks.

It is worth noting that this research does not provide arguments that higher creativity of the workplace determines the level of wages. Therefore, it is proposed to investigate whether the wage increases with higher creativity required at the workplace and if the strength of these relationships changes in particular periods of analysis. In order to broaden the research it is worth to employ more advanced statistical and econometric methods, such as correlation coefficients and Granger tests to identify the direct causation and other econometric methods to account for endogeneity of variables.

The results of the analyses indicate – confirming the results of other representative studies in this area [Heyman, 2016; Autor, 2015] – a decrease in the share of routine tasks in favor of non-routine. In the analyzed company it is reflected in operational activities. Moreover, wage inequality rises more visibly in non-routine jobs, especially non-routine cognitive tasks in all types of company's activity.

Literature attributes this trend to technical advancement, which is not confirmed in the case of the analyzed company. The presented analyses do not give consideration to the company's activities related to innovation and investment projects aimed to modernize organizational processes. However, the analyzed period does not record any significant structural changes related to the company's particular functions. It can be assumed, therefore, that the diagnosed changes in work content reflect the effects of technical advancement and the employment of more advanced technologies, especially in the company's core activities. Therefore, further research will identify the impact of technological progress on the content of work and the wage inequality in the studied municipal enterprise. In the future it would be worth to investigate whether the role of the human factor in the work processes is increasing along with technological progress. In this regard the O-ring production function studied by Kramer [Kremer, 1993] will be used. Future research would particularly test following hypothesis: when technology "makes some steps in a work process more reliable, cheaper, or faster, this increases the value of the remaining human links in the production chain" [Autor, 2015: 6].

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OCCUPATIONAL TASKS AND WAGE INEQUALITY. CASE OF MUNICIPAL COMPANY IN POLAND

Abstract

Given the rapid advances and the increased reliance on the modern technologies in social and economic processes, the question of how it is changing work and wage inequality is highly interesting for scholars of labor market, economic progress and organization. This article attempts to investigate occupational tasks and wage inequality over last decade in the one of municipal companies in Poland. In particular, the conducted study, based on the data from the years 2009 and 2018, aimed to identify the change of share of particular types of jobs according to the adopted classification and to analyze individual pay scales from

the perspective of the identified types of positions. The research procedures were based on document analysis, structured interviews, team work methods, and classification technique. The results indicate a decrease in the share of routine in favor of non-routine jobs. Moreover, wage inequality rises more visibly in non-routine jobs, especially non-routine cognitive in all types of company's activity (i.e., operational, supporting and managerial). Paper corresponds with the issues of job polarization on firm-level that is more or less absent in the empirical literature. Moreover, the substantial part of literature of the subject has not taken into account municipal enterprises in this process yet.

Keywords: occupational tasks, content of work, wage inequality, municipal company

JEL classification codes: J24, J31, J40

ZADANIA STANOWISKOWE I ZRÓŻNICOWANIE WYNAGRODZEŃ. STUDIUM PRZYPADKU PRZEDSIĘBIORSTWA KOMUNALNEGO W POLSCE

Streszczenie

W artykule podjęto próbę identyfikacji zmian treści pracy na poszczególnych stanowiskach organizacyjnych wraz z analizą zróżnicowania wynagrodzeń w ciągu ostatniej dekady w jednej z firm komunalnych w Polsce. W szczególności przeprowadzone badanie, oparte na danych z lat 2009 i 2018, miały na celu identyfikację zmiany udziału poszczególnych rodzajów prac zgodnie z przyjętą klasyfikacją oraz analizę zróżnicowania wynagrodzeń z perspektywy zidentyfikowanych rodzajów stanowisk. Przeprowadzone badania wykazały zmniejszenie udziału prac rutynowych na rzecz nierutynowych zadań. Co więcej, nierówności płacowe rosną istotniej w przypadku nierutynowych prac, zwłaszcza w odniesieniu do prac nierutynowych poznawczych we wszystkich rodzajach działalności firmy (tj. operacyjnej, wspierającej i zarządczej). Artykuł koresponduje z zagadnieniami odnoszącymi się do polaryzacji pracy na poziomie firmy, w szczególności przedsiębiorstw komunalnych.

Słowa kluczowe: zadania stanowiskowe, treść pracy, zróżnicowanie wynagrodzeń, przedsiębiorstwo komunalne

Kody klasyfikacji JEL: J24, J31, J40