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New Firms Formation in Medical, Creative and Agri-Food Sectors as a Function of Local Conditions and Budget Policy of Polish Communes

Keywords: budget policy; communes; new firms formation; entrepreneurship determinants

JEL: H70; H72; H75

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Abstract

Theoretical background: The article will help to answer the question what factors contribute to the emergence of new companies in medical, agri-food and creative sectors. Moreover, the aim of the article is to examine to what extent the budget policy of communes determines the creation of new enterprises in each of the analysed sectors separately.
Purpose of the article: The aim of the article is to examine the factors affecting new firms formation in medical, agri-food and creative sectors in Poland, as well as the impact of budget policy of local government units at commune level on entrepreneurship in chosen sectors.
Research methods: The study was conducted by means of a panel econometric model. In particular, the study was based on FEM estimation modelling based on 2,477 communes in the years 2010–2021.
Main findings: The conducted research confirmed that different factors affect new firms formation in studied sectors. The research proved that budget policy of communes influences new firms formation. Moreover, the study confirmed that individual elements of the local budget policy have a different impact on each economic activity. Thus, local budget policy should be profiled in terms of type of activity supported.

Introduction

Nowadays local development is seen as a key factor in overall development and social cohesion (Coffey & Polese, 1985; Vázquez-Barquero & Rodríguez-Cohard, 2019; Kaivanto & Zhang, 2022). Development of a country is one of the crucial tasks of each government and simultaneously probably one of the hardest (Chenery & Taylor, 1968). Local development is intrinsically associated with a multi-dimensional concept of change bringing together economic, social, cultural and environmental dimensions (Kisman & Tasar, 2014, p. 1690). It can be used by local government units (LGUs) as a tool for improving quality of life and supporting inhabitant's empowerment, strengthening local assets and social cohesion (Jones, 2014; Callanan, 2020; Tong & Saladrigues, 2022). This phenomenon can be described as a dynamic process including three key components: inputs, outputs and outcomes (Jouled et al., 2010, p. 10). The inputs include factors such as: area, sense of belonging, community, bottom-up, partnership, endogenous potential and proximity (Parker, 2001). In turn, outputs consist of local beneficiaries, self-help, increased incomes, access to services, quality, efficiency, relocation, diversification, new methods and increased local value. The outcomes consider collective and common goods, development, strategy, regeneration, effectiveness, future, social innovation, empowerment, legitimacy, well-being, amenities and collective intelligence (Jouled et al., 2010, pp.

10–11). Start-ups "arise from a specific context of social, economic and technical connections" that need to be established for them to grow (Baraldi et al., 2019, p. 58). La Rocca et al. (2019, p. 150) argue similarly that we need to learn more about "how ongoing interdependent actions emerge and evolve and ultimately how this affects the development of a new venture".

Local economic development strategies can underline improvement in processes and products, permitting local regions to exploit the market potential. This may concern both services and manufacturing. Local development practitioners may be able to measure in a various way (Robson & Iain, 2008, p. 39). In this context, the article considers the situation of creating new firms in selected sectors from the point of view of budget policy of communes in Poland (Skica et al., 2020). These factors have been described as economic. In addition, control variables were included in the analyses which affect the dynamics of entrepreneurship. The first group was made up of social factors such as education (Storey, 1982; Jafari-Sadeghi et al., 2019), and the second one was institutional (Boettke & Coyne, 2009; Urbano et al., 2019) and political (Skica et al., 2013) variables, representing, among others, the type of commune and its location in voivodeship (Skica et al., 2020).

Therefore, the main goal of the study was to analyse the impact of budget policy of LGUs on new business formation in three sectors: medical, creative and agri-food processing. The selection of sector under question refers to assumptions of "The Central Poland Development Strategy until 2020 with a 2030 Perspective". The solutions proposed in this strategy are based precisely on development and simultaneous support of these three sectors. Moreover, these sectors fit into regional smart specializations (SMART). In addition, there is no research on entrepreneurship presented from the perspective of the relationship between the budgetary policy of communes and new firms formation in these sectors. In the following study, answers to two research questions are provided. What factors contribute to the emergence of new companies in the medical, creative and agri-food sectors? To what extent does the budget policy of communes determine the creation of new enterprises in each of the analysed sectors separately? The authors stated the following hypothesis: the factors supporting the development of entrepreneurship in communes are not only LGUs budget policy, but also social, specialization and location factors.

Thanks to the approach applied, the research is innovative in its nature, thus, contributing to the development of analyses in this area, and its uniqueness results from panel analysis conducted simultaneously in three analysed aspects.

Literature review

New-business formation factors

Entrepreneurship is embedded in the theory and practice of economic growth and development (Hájek et al., 2015). Understanding factors that promote or mitigate entrepreneurship is crucial to regional economic development efforts (Fotopoulos & Storey, 2019; Grau & Reig, 2021), since a high level of new business significantly contributes to regional economic vitality (Lee et al., 2004). Entrepreneurship is a spatially uneven process (Stam, 2010). Literature identifies two trends in analyses in the field of new business formation process, referring to either analysis from the point of view of the decision-making or analysis of determinants of creating new companies (Andersson & Koster, 2011; Jukova et al., 2019).

There is a vast literature dedicated to determinants of new firms formation. Roman et al. (2018) as well as Guzman and Kacperczyk (2019) showed that macroeconomic and demographic variables are the most significant. Access to finance also plays a role in supporting entrepreneurship (Rusu & Roman, 2017; Nguyen, 2020; González-Moralejo et al., 2021; Pervan et al., 2019) and varies considerably from country to country (Kwon & Arenius, 2010). Urrutia and Marzábal (2015) confirmed a positive relationship between access to finance and entrepreneurship in the European Union (EU) and the United States of America (US). Moreover, De Clercq et al. (2012) proved that people's access to financial capital enhances the likelihood to start a business, while Anton and Bostan (2017) identified a strong positive relationship between access to finance and total entrepreneurial activity (TEA).

The notion of entrepreneurship was connected with quality of life (Delfmann et al., 2014; Puciato et al., 2021). The importance of entrepreneurship is being underlined in the literature not only for the economic growth (Fritsch & Mueller, 2007) but also for employment growth (Van Stel & Suddle, 2008; Porter, 2019). The positive relationship between entrepreneurship and agglomeration economies have been presented in the study of Van Stel and Suddle (2008). Delfmann et al. (2014) and Fotopoulos (2014) show a positive relationship between specialization and new firm formation. Fotopoulos (2014) indicates that interregional differences in new firm formation including key factors are time persistent. In turn, Delfmann et al. (2014, p. 1034) reveal that the relationship between entrepreneurship and population change depends heavily on the regional context.

Population growth is the next factor to be listed as a determinant of entrepreneurship (Bosma & Schutjens, 2011; Hopenhayn et al., 2022). Population growth has a positive long-term effect on entrepreneurship. In countries with a growing population and workforce, the share of the self-employed in the workforce is increasing (ILO, 1990).

The level of education constitutes the next entrepreneurship determinant (Backman & Kohlhase, 2022). In many cases this factor was chosen as a proxy of human

capital. Not only did Hájek et al. (2015) do it in their models when estimating entrepreneurship, but also Fotopoulos (2014) showed a positive relationship between this proxy of human capital and new firms.

In the literature there are also presented some other determinants of new-business formation, such as: foreigner status (Delfmann et al., 2014), wage uncertainty (Bishop, 2012), social climate and entrepreneurial culture (Belás et al., 2014; Capelleras et al., 2019; Cosci et al., 2021), evolutionary economic geography and path-dependency (Fotopoulos, 2014), income growth (Lee et al., 2004), as well as policy towards small and medium-sized enterprises (SMEs) and entrepreneurial ecosystems. Minniti (2008) as well as Ferrell and Fraedrich (2021) claim that policymakers shape the business environment by the active support of new and existing business entities through various entrepreneurship policies (Stevenson & Lundström, 2001). De Matteis et al. (2022) as well as Dvouletý and Lukeš (2016) discuss impact of public policies on entrepreneurship. In their opinion, policies focused on self-employed may lead to higher levels of entrepreneurial activity.

The EU membership opens a number of opportunities for starting SMEs (Piasecki et al., 2003). Accession to the EU made it necessary to decentralize institutional system supporting entrepreneurship and build foundations of entrepreneurship support policies by new member states (Rogut & Piasecki, 2020).

Infrastructure and institutional conditions for firms are defined as the business environment. Its role is rooted in the institutional theory and suggests that bad environment of formal institutions might discourage individuals to set up a business (Dempster & Isaacs, 2017).

Explaining the entrepreneurship factors, one cannot ignore an entrepreneurial ecosystem (Spigel, 2017; Volkmann et al., 2021; Leszczyński & Zieliński, 2021). The entrepreneurial ecosystem approach not only sees entrepreneurship as a result of the system, but also sees the importance of entrepreneurs as leaders in the creation of the economic system (Feld, 2012). To conclude, an entrepreneurial ecosystem is a structure that fosters entrepreneurship and governance, to coordinate and motivate entrepreneurial activities by setting rules and norms. Its role and significance in the processes of stimulating entrepreneurship cannot be overestimated (Brooks et al., 2019).

Local fiscal policy effects on LGUs economic development

Financial constraint is one of the crucial determinants of new business creation (Leon 2019; Liargovas et al., 2021). The importance of the fiscal imperative for local economic development is stressed, *inter alia*, by Ojede and Yamarik (2012) and others. Janeba and Osterloh (2013) projected a modern theoretical model of tax competition, including the local level. Their model forecasts that the capital tax on large authorities decreases more strongly with growing interregional rivalry. In

turn, Ojede and Yamarik (2012) studied the influence of taxes on state economic growth. Their results show that sales and property taxes, have a long-term outcome on growth as well. The study of Dennis et al. (2011) finds out that the effective state and local tax rate as a percentage of income of households is significantly influenced by whether a state has a multi-rate income tax, right-to-work laws, the liberalism of a state's electorate, the average tax burden in a state and past tax policy. According to Aničić et al. (2016, p. 263), local tax policy should be adequate, with a predictable amount of tax and incentive for activities that are dominant in the local economic structure (see Rickman & Wang, 2020).

Two fiscal titles, namely the property tax and the tax on means of transport have the greatest impact on the stimulation effects of the local tax policy. They are, therefore, the most effective tools to support local economic development (Felis & Rosłaniec, 2017; Gregova et al., 2021). The indicated reservation refers to the fact that not always applying fiscal preferences even in relation to the above-mentioned, most stimulating tax titles will translate into assumed development effects (Skica & Bem, 2014). Some of the research works directly prove the ineffectiveness of using local tax policy in the processes of stimulating the growth of the tax base (Korolewska, 2014, p. 106). However, communes budgetary policies are not solely based on taxes. Their integral part are expenses, including investment expenses. So, the key question is about their impact on local economic development. Well placed investments result in increasing commune's attractiveness to potential investors (Kożuch, 2006, p. 182). In addition, the real level of investment is very strongly correlated with the incomes of communes, and especially with the amount of their own revenues (Czempas, 1999, p. 37). Kawka (2012) claims that the condition for the effective impact of local authorities on local economic development is the development of infrastructure, which is the main instrument of local economic development. In turn, Barej (2011) proves that public sector investments affect economic development, technical progress, wealth of a given city and the local labour market. This view is shared by Perska (2014) as well as Surówka (2019) who treat investment expenditure as an instrument to support entrepreneurship. De Mello (2002) proves, however, the positive relationship between the three categories of budget expenditure (i.e. expenditure on health, housing and urbanisation) and local economic growth.

The literature explores the relationships between local budget policy and entrepreneurship (Skica et al., 2020), as well as the impact of decentralisation in financial terms on economic development (Bartlett et al., 2013). Despite such a wide spectrum of undertaken research threads, the analyses carried out so far do not provide an unequivocal answer to the impact of individual expenditure categories on entrepreneurship. They also do not identify relationships between the budgetary policies of communes and individual types of economic activity. Finally, in the studies discussed above, inference was based on a relatively narrow research sample. This is an objective limitation for extending research findings to the entire population. This article breaks the limits outlined above, presents a different approach to research on the

dynamics of new registrations, providing the significant added value in explaining the studied phenomenon of entrepreneurship.

Research methods

New-registered entities in analysed sectors – basic notion

The territorial division of Poland has a three-stage character. It is divided into 16 voivodeships, 314 counties, 66 cities with counties rights and 2,477 communes (i.e. 302 urban communes, 642 urban-rural communes and 1,533 rural communes). The communes have the widest range of tasks, and the largest scope of financial independence. They constitute the lowest level of the administrative division. Due to the fact that the structure of own revenues includes local taxes and fees, they have the greatest potential to shape a pro-development budget policy.

Phenomenon of the impact of LGUs on new firms formation depends on many socio-economic factors specific to a given sector of the economy. Only in the years 2012–2017, the number of newly established enterprises increased on average by 1.8% in the medical sector and 4.17% in the creative industry. In the agri-food industry, a drop in the number of newly established enterprises was recorded on average by 0.26%. The smallest fluctuations in the number of newly established firms were noticed in the medical industry. As for the spatial diversification, there was no clear trend in the formation of new enterprises depending on their location in individual voivodeships. It should be emphasised, however, that the upward trend in the number of enterprises in all sectors is noticeable. However, it should be underlined that this trend in creative sector was by far the largest (4.17%), in comparison with the medical and agri-food sectors.

Model specification testing

Undertaking the analysis of the new firms formation over time requires the use of modelling methods that provide an objective and comprehensive picture of the reality under study. This is where econometric modelling helps to achieve the set goals (Jabłońska & Stawska, 2020).

The implementation of the objectives assumed in the study and verification of the research hypothesis were based on the FEM estimation model (Nyström, 2008) in the years 2010–2021. Moreover, the 2,477 communes became the subject of the analysis, because they reflect the lowest level of the country's territorial division, they have the widest range of instruments to stimulate entrepreneurship.

Based on the literature review and analysis of available data (originated from Local Data Bank), potential variables were extracted. The stationary nature of the variables taken into the estimation had been examined (Barbieri, 2005) and confirmed

with the Levin et al. (2002) test after transformation of some variables (soc_bft, Exp_gen, Exp_inv, Grants, Gen_sub and av_salary) into first differences. A preliminary estimation of model parameter estimates was made (Baltagi, 2008). The pooled panel type model, implied lack of individual effects and no change during the analysed phenomenon (Dańska-Borsiak, 2011). All the observations were treated as coming from a simple random sample and the OLS methods were applied. For explanatory variables in the model it was decided, according to literature review, correlation and causality analysis, to choose the following set:

– Av_tax_rate: Average tax rates (the lower the better),
– Grant: Grants, total (the more the better),
– Gen_sub: General subvention total (the less the better),
– Av_salary: Average monthly gross wages and salaries (the lower the better),
– Soc_bft: Family benefits paid in each commune (the lower the better),
– Dvlp_plan_area: The area of the commune covered by the overall plans in force – communes (the more the better),
– Transf_area: Total area of agricultural land for which non-agricultural use was changed in the plans – communes (the more the better),
– Ger_Lessch: Gross education ratio. (the higher the better),
– Exp_gen: General expenditures (the lower the better),
– Exp_inv: Investment expenditures (the higher the better),
– Reg_unemp: Registered unemployed people (the lower the better),
– V: The location of the commune in the voivodeship,
– TP: Metro (Metropolitan communes), Rural (Rural communes), Metro rural (Metro-rural communes).

The general form of estimated models can, therefore, be written as:

$$\mathrm{NE\_MED}_{it} = \alpha_0 + \alpha_1 \mathrm{Gen\_sub}_{it} + \alpha_2 \mathrm{av\_tax\_rate}_{it} + \alpha_3 \mathrm{Reg\_unemp}_{it} + \alpha_4 \mathrm{Transf\_area}_{it} + \alpha_5 \mathrm{Soc\_bft}_{it} + \alpha_6 \mathrm{av\_salary}_{it} + \alpha_7 \mathrm{Exp\_gen}_{it} + \alpha_8 \mathrm{Grants}_{it} + \alpha_9 V_{it} + \alpha_{10} \mathrm{TP}_{it} + \varepsilon_{it}, \quad (1)$$

$$\mathrm{NE\_CR}_{it} = \alpha_0 + \alpha_1 \mathrm{Gen\_sub}_{it} + \alpha_2 \mathrm{av\_tax\_rate}_{it} + \alpha_3 \mathrm{Reg\_unemp}_{it} + \alpha_4 \mathrm{Transf\_area}_{it} + \alpha_5 \mathrm{Soc\_bft}_{it} + \alpha_6 \mathrm{av\_salary}_{it} + \alpha_7 \mathrm{Exp\_inv}_{it} + \alpha_8 \mathrm{Ger\_lessch}_{it} + \alpha_9 V_{it} + \alpha_{10} \mathrm{TP}_{it} + \varepsilon_{it}, \quad (2)$$

$$\mathrm{NE\_AGF}_{it} = \alpha_0 + \alpha_1 \mathrm{Gen\_sub}_{it} + \alpha_2 \mathrm{Av\_tax\_rate}_{it} + \alpha_3 \mathrm{Reg\_unemp}_{it} + \alpha_4 \mathrm{Transf\_area}_{it} + \alpha_5 \mathrm{Dvlp\_plan\_area}_{it} + \alpha_6 \mathrm{Soc\_bft}_{it} + \alpha_6 \mathrm{Av\_salary}_{it} + \alpha_7 \mathrm{Exp\_inv}_{it} + \alpha_8 V_{it} + \alpha_9 \mathrm{TP}_{it} + \varepsilon_{it}, \quad (3)$$

where: *i*-commune for *i*=1,...,321, *t*-year, for *t*=1,...,11, variables description – see Table 4, α_0,... α_{10}, α_m, for *m*=1,...3, α_l for *l*=1,...16, α_k for *k*=1,..., 19, α_n for *k*=1,..., 32 – structural parameter of the model, ε_{it} – random component of the model.

where: *i*-commune for *i*=1,...,321, *t*-year, for *t*=1,...,11, variables description – see Table 4, α_0,... α_{10}, α_m, for *m*=1,...3, α_l, for *l*=1,...16, α_k for *k*=1,..., 19, α_n for *k*=1,..., 32 – structural parameter of the model, ε_{it} – random component of the model.

The appropriate estimation procedure was determined based on the assumptions regarding constancy or randomness of group and time effects, i.e. selection of the appropriate pooled model, a fixed effects (FEM) or variable effects (REM) model was made. Therefore, a FEM estimation model was used to estimate the creation of a model of new enterprises in the analysed sectors (details are available on request).

Results

The analysis was conducted from the perspective of three sectors: medical, creative and agri-food. Table 1 presents the results of estimation of the models' parameters.

Table 1. Estimation results

Variables	Creative sector	Agri-food sector	Medical sector
const	1.45734** (0.0127)	1.61574*** (<0.0001)	1.82593*** (0.0001)
Gen_sub	−4.46748e-09*** (0.0004)	9.17949e-010** (0.0418)	-2.34000e-09** (0.0328)
Av_tax_rate	0.0230828*** (<0.0001)	-0.00462897*** (0.0018)	0.0112094*** (<0.0001)
Reg_unemp	8.85449e-05*** (<0.0001)	1.92355e-07 (0.9744)	6.64007e-05*** (<0.0001)
Transf_area	0.000339957*** (<0.0001)	1.48725e-06 (0.9337)	0.000130339*** (0.0003)
Soc_bft	4.43238e-06 (0.4525)	-6.30584e-06*** (0.0058)	1.09222e-05** (0.0318)
Av_salary	0.000231753 (0.1965)	-0.0021375** (0.0107)	0.000213552 (0.1578)
Dvlp_plan_area	−2.20666e-06 (0.6074)	8.98763e-07 (0.6840)	5.98212e-06* (0.0971)
Exp_inv	7.63339e-010 (0.2667)	2.81720e-010** (0.0418)	-5.17069e-010 (0.4714)
Ger_lessch	−0.00455091*** (<0.0001)	0.00318848*** (<0.0001)	-0.00421784*** (<0.0001)
Exp_gen	−4.31476e-010*** (0.0057)	-1.50291e-011 (0.7802)	-2.32528e-10 (0.1682)
Grants	6.56959e-09*** (<0.0001)	-5.68277e-010* (0.0588)	2.84696e-010*** (<0.0001)
vv_1			
vv_2			
vv_3	0.450441*** (<0.0001)	−0.0304902 (0.6191)	−0.132489 (0.2566)
vv_4	−1.06732*** (<0.0001)	−0.0481003 (0.4749)	−0.693367 *** (<0.0001)
vv_5	0.675657*** (<0.0001)	0.294987*** (<0.0001)	−0.175769 (0.1403)

Variables	Creative sector	Agri-food sector	Medical sector
vv_6	0.759077*** (<0.0001)	0.0888072 (0.1701)	−0.356693*** (0.0024)
vv_7	0.649505*** (<0.0001)	0.0853645 (0.2339)	−0.414018*** (0.0016)
vv_8	1.13544*** (<0.0001)	0.0818651 (0.3239)	−0.234587 (0.1460)
vv_9	0.548372*** (0.0023)	0.0258277 (0.7556)	−0.215297 (0.1699)
vv_10	−0.232064 (0.2716)	0.506832*** (0.0002)	−0.506026*** (0.0076)
vv_11	−1.17289*** (<0.0001)	−0.0314174 (0.7482)	−1.02530*** (<0.0001)
vv_12	0.896388*** (0.0002)	0.281575** (0.0135)	−0.333187 (0.1026)
vv_13	−0.438763 (0.1068)	0.128180 (0.3182)	−0.816652*** (0.0005)
vv_14	−0.754481** (0.0105)	0.171924 (0.2217)	−0.501293* (0.0515)
vv_15	−0.518048 (0.1252)	0.435781*** (0.0078)	−0.816189*** (0.0042)
vv_16	−1.74352*** (<0.0001)	0.402763** (0.0325)	−1.08272*** (0.0012)
Rural	-0.366415*** (<0.0001)	0.0481003** (0.0413)	-0.438589*** (<0.0001)
Metro	1.26196*** (<0.0001)	-0.0982062*** (0.0002)	1.27246*** (<0.0001)
Metro-rural			
VIF<10 Robust HAC estimation			

Source: Authors' own study.

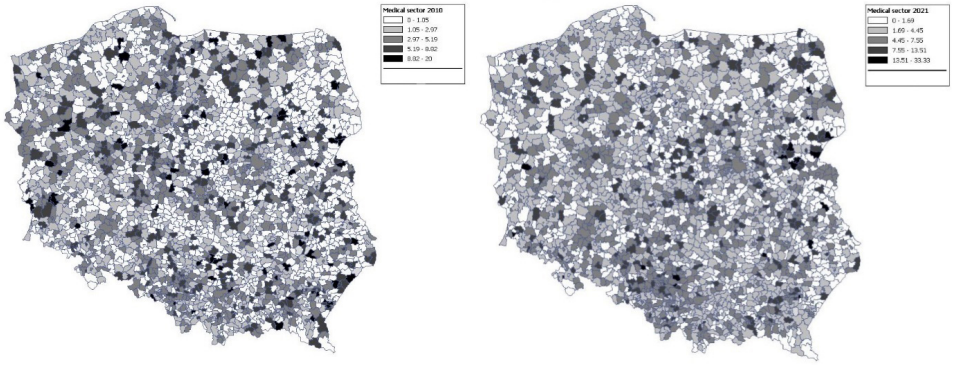

Figure 1. Spatial diversification of new registered medical sector entities in analyzed years

Source: Authors' own study in PQStat.

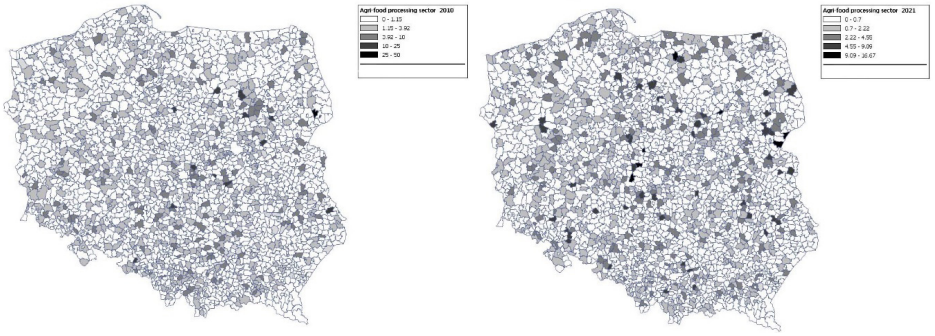

Figure 2. Spatial diversification of new registered agri-food processing sector entities in analyzed years

Source: Authors' own study in PQStat.

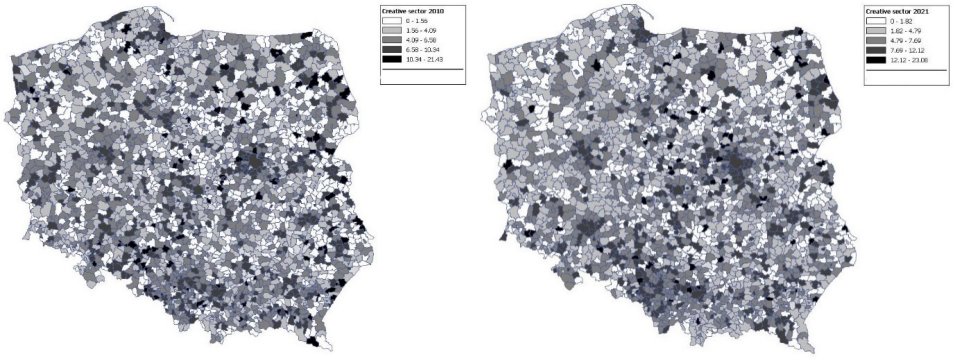

Figure 3. Spatial diversification of new registered creative sector entities in analyzed years

Source: Authors' own study in PQStat.

All the variables that were included in individual models were classified into 5 groups, which was also confirmed in the literature (Belás et al., 2014; Hájek et al., 2015; Jabłońska & Stawska, 2020):

1) economic: revenues (grants, general subventions) and expenditures of communes, registered unemployed people, investment expenditures, general expenditures – implementing policy instruments of economic and financial character,

2) social: gross education ratio (primary schools/lower secondary schools), social benefits,

3) institutional and political: type of commune (metro, rural, metro-rural), location of the commune in the voivodeship,

4) national policy: average salary, average tax rate,

5) spatial architecture: the area of the commune covered by the overall plans, the share of the area covered by the applicable local spatial development plans in the

total area, total area of agricultural land for which non-agricultural use was changed in the plans.

Normality tests for all the models were also conducted and they confirm the normal distribution of the random component. In almost all models the sings of the estimated variables were in line with the authors' expectations. In some cases, however, this has not happened, which may be sector-specific, and is explained in the following description and discussion.

Discussions

In the years 2010–2021, among the economic variables affecting firms formation from the medical sector were general subventions, grants (Harrison & Caron, 2008), gross education ratio, social benefits, the area of the commune covered by the overall plans in force, average tax rate, total area of agricultural land for which non-agricultural use was changed in the plans and registered unemployed people (Delfmann et al., 2014). The sign next to the variable of registered unemployed differs from the authors' expectations. However, it should be noted that the estimated value is very low. Thus, it could be interpreted that as the number of unemployed grows, their tendency to start a business as a solution to financial problems grows (see Nikiforou et al., 2019 or Kaivanto & Zhang, 2022). Contemporary formulations of "necessity" and "opportunity" entrepreneurship are aligned with the situational, contingent approach which emphasizes external environmental factors (like financial problems) over internal psychological traits and states. From a social perspective the social benefits played the most important role. The average salary also tends to be determinant of new firms formation in medical sector (Hegerty & Weresa, 2022). What is more, metropolitan communes were more conducive to the formation of new businesses than rural and metro-rural communes. The location of a given commune in the voivodeship is also not insignificant. In communes located in such voivodeships as Lubuskie, Małopolskie, Mazowieckie, Podlaskie, Pomorskie, Świętokrzyskie, Warmińsko-Mazurskie, Wielkopolskie and Zachodniopomorskie more enterprises were formed than in other parts of Poland (see Figure 1). The healthcare sector in these voivodeships operates more efficiently than in other voivodeships, which was confirmed in the study by Miszczyńska (2018, 2019, 2020). A high percentage of specialist doctors was also observed there, which also directly relates to the quality of services provided (confirmed in study by Rybarczyk-Szwajkowska et al., 2019). The number of specialist medical equipment is also high. In addition, it seems important that in these voivodeships significant expenditures on the healthcare sector are transferred from public funds. Financing possibilities have a direct impact on the financial condition of hospitals, which translates into the effectiveness of their operation which was confirmed in the study by Rastoka et al. (2022).

Among the economic variables affecting the formation of new firms in creative sector were general subventions (Harrison & Caron, 2008), gross education ratio, grants, general expenditures, average tax rate, transformed area, and registered unemployed people (see Cruz & Teixeira, 2021). From a social perspective, the educational level was also revealed as a determinant (Khefacha et al., 2013). From the national policy perspective, the average salary played the most important role (Bosma & Schutjens, 2011). Similarly, as in case of the medical sector, metropolitan were more conducive to the formation of new firms than metro-rural ones. This theory was reflected in research conducted by Barczyk-Ciuła and Satola (2022). As a generator of development, the metropolitan areas enter into functional interactions with neighbouring units, providing them with spatial, economic and social potential. However, as the model states, fewer enterprises from the creative sector are created in rural communes. It is because creative sector is characterised by strong internal differentiation in terms of the organizational forms used and the location of the headquarters (Kasprzak, 2018). Additionally, the creative sector in Poland is also made up of very small companies, often one-person ones, registered in the owner's place of residence. Often, they are family businesses with local employees (Mackiewicz et al., 2009). The location of a given commune in a particular voivodeship was also significant (see Figure 3). This was connected with larger funds allocated for culture than in other voivodeships. The results obtained in the above model coincide with the results of Suchecki's (2014, 2018) research, which confirmed that in these voivodships quite significant amounts were allocated to museums as well as protection and care of historic monuments, libraries, theatres, community centres and houses, day-care rooms and clubs.

The economic variables affecting new firms formation from the agri-food sector include: general subvention, grants, social benefits, average salary, gross education ratio, and average tax rate (Harrison & Caron, 2008; Misiąg et al., 2022). From a social perspective, the social benefits played the most important role. This was confirmed in the research done by Mehralizadeh and Sajady (2005). Without infrastructure the private sector cannot flourish. What is more, the level of average salary was also a determinant of the new firms formation. Moreover, in the agri-food sector only in rural communes the formation of new entities was bigger than in other types of communes. The specification of the analysed area, in this case of rural character, also correlates with global research results (Renski, 2008). According to recent studies (Zivojinovic et al., 2019; Do Adro & Franco, 2020), globalization poses challenges to rural areas given technological advances and intensified competition in agricultural markets.

The obtained modelling results indicate that the location of a given commune in the a particular voivodeship was also significant (see Figure 2). This may be related to the fact that these voivodeships have one of the highest percentages of allocations from the regional EU operational programs (OECD, 2018, p. 158) and are characterized by a predominant share of rural communes, which by their nature naturally favours the development of the agri-food sector.

To sum up, the modelling process considered not only the variables relating to the LGUs policy, but also those relating to the national policy and macroeconomic conditions that affect new firms formation. The analysis considered the impact of national policy on the development of the local government policy by adding general subsidies into inference process. For decades, at the local government authority level, much effort has been seen in the social development arena shadowing efforts to promote local businesses through business development services. National level organs set to promote businesses and to support the business agenda are expected to be the change catalysts and to propagate supportive policies for sustainable local economic development objectives (Issa, 2022).

Similarly, the unemployment was used, which combined elements of national level policies with macro-environment conditions (Kong & Prinz, 2020). Among the explanatory variables, we took also into account the average monthly gross salary, assuming that the higher its level, the lower the propensity to undertake business activity. People employed full-time, receiving stable and attractive wages, will not experience financial incentives to start a business (Rees & Shah, 1986). In contrast to low-income people who treat business activity as an opportunity to improve their own financial situation (Parker, 2001). This hypothesis is confirmed by Wosiek's (2021) study where a rise in unemployment rate has a positive effect on subsequent new business formation. The positive unemployment push effect is expected to be stronger in operational services. A complementary variable for the studied relationship between remuneration and propensity to entrepreneurship is the ratio of the average monthly gross salary in a given area to the national average. This variable makes it possible to capture the relationship between the distance separating counties from the national average and entrepreneurship. In line with the assumption discussed in relation to the previous variable, it was assumed that the greater the difference between the counties and the national average (lower average monthly gross income in the county), the greater the tendency to undertake business activity. A similar interpretation was adopted for the next variable, i.e. amounts of disbursed family benefits. The lower the value of the benefits paid, the higher the propensity for economic activity. Low social benefits are a factor that makes their beneficiaries look for opportunities to improve their income situation in starting a business (Koellinger et al., 2007).

Another variable was tax rates, which are a burden for people running a business. Limited tax jurisdiction enables communes to reduce tax rates (Brzozowska & Kogut-Jaworska, 2016). This stimulates local tax competition for investors (Buettner, 2001). The lower the tax rates, the lower the costs of running a business, and,thus, the more attractive the conditions for business location. Venancio et al.'s (2022) findings suggest that corporate taxation is an imperative constraint for entrepreneurship, particularly for high-quality entrepreneurs. These better-educated individuals find it easier to overcome the hurdles of tax legislation and to make use of the opportunities created by a specific tax reform. Contrary to tax revenues constituting own revenues, grants and subsidies constitute an external source of budgetary revenues

of communes. In the case of subsidies, the key is to link it with the commune's own incomes and its population (Świrska, 2008). The lower the two parameters, the greater the value of the subsidy granted to communes (Miszczuk, 2014). As a result, the smaller the value of the variable representing the subsidy, the more economically and demographically stable the commune is, and, therefore, more attractive for business (Czudec, 2014).

Among the explanatory variables, three were related to land development. The first is the area of the commune covered by the valid spatial development plans. The study assumes that the larger the area is organised with land use plans, the easier it is to assess its suitability for the company's location from the perspective of the availability of investment areas (Dylewski, 2006). The second variable is the share of the area covered by the valid local spatial development plans in the total area. The higher this percentage, the smaller the uncertainty as to the future destination of the remaining areas and,thus, the potential obstacles to the development of economic activity in a given area (Domański, 2002). Another variable is the area of agricultural land for which the use of non-agricultural land has been changed in the plans. Such decisions are often made in connection with the preparation of land for business activity. Thus, the increase in the value of this variable to some extent can be associated with the creation of conditions by the commune for the location of investments and the climate for entrepreneurship (Sztando, 2017).

The research also considered two variables related to education, i.e. gross enrolment rate for primary schools and an analogous variable for lower secondary schools. Both variables represent human capital (Kyriacou, 1992). The higher their level, the higher the human capital resources in the commune. The latter, in the long term, shapes future labour resources, acting as a stimulus for initiating activities in a given area that use endogenous potential (Acs & Armington, 2004; Vodă & Nelu, 2019. Recent research study (Ndofirepi, 2020) shows that the effects of entrepreneurship education variable had a positive and statistically significant relationship with need for achievement, risk-taking propensity, internal locus of control and entrepreneurial goal intentions.

The next two explanatory variables relate to the labour market. They include working people as well as unemployed registered in the commune. The working population constitute a measure of general economic development (Accetturo & De Blasio, 2012). The higher the value of the variable, the more economically developed the commune, and,thus, more attractive for business (Garofoli, 1992). A complementary measure of economic development is the number of the unemployed. The lower the level of the variable, the better the condition of the local economy (Ferragina & Pastore, 2008; Content et al., 2019; García-Estévez & Duch-Brown, 2020), which encourages the establishment of new firms in a given area. The financial status of the commune's inhabitants determines the local demand for products and services offered by economic entities established in a given area (Malmendier & Shen, 2018).

Finally, the generic categories of communes were considered as explanatory variables, distinguishing urban, rural and urban-rural communes and analysing their rela-

tionship with entrepreneurship (Bieńkowska-Gołasa, 2015). Moreover, the voivodeships to which the examined communes were assigned were used as the explanatory variable. In the case of rural communes, it was assumed that their status favours the creation of agri-food enterprises in their area, while in the case of urban-rural and urban communes, it was assumed that they were positively correlated with initiating economic activity in the creative and medical sectors. By including voivodeships in the analysis, the authors aimed to identify spatial patterns in terms of new enterprises in each of the analysed sectors. This procedure will allow them to be compared with the developed regional smart specializations in order to determine whether the strategies adopted in individual regions coincide with the profiles of companies established in their area.

Conclusions

The results of the conducted research study are a source of valuable suggestions for local policy makers responsible for creating the budgetary policy of communes and its potential effects. Examining communes and their budget policies, their implications should be formulated towards local authorities. At the local level, we propose that the implications go in the direction of linking fiscal policy to the sector the authorities want to support. The orientation of the local budget policy should correspond to the specificity of the supported sector (Accordino, 2020).

In connection with the above, local authorities, from a perspective of creative sector, should put emphasis on improving education level and spending investment expenditures in order to obtain higher rate of new business formation. In turn, local policy makers can support agri-food sector using a tool such as development planned area. Supporting development planned area at local level will positively affect the rate of new business formation. As the representatives of the medical sector claim, local authorities should pay attention to the grants, which are key factor determinants for this type of sector.

Furthermore, it is necessary for communes to end their policy called: "one size fits all". Therefore, another element of the recommendations for policy makers should be included: to avoid transferring solutions that work well in one commune onto the ground of another commune. Both of them may be oriented towards supporting other sectors, as a result, copying solutions from one commune to another (in terms of budget policy) will turn out to be ineffective. Fiscal policy should resemble an investment. The current targeting of financial flows is to bring benefits in the future in the form of budget revenue streams resulting from economic entities located in communes. Not well addressed support will not only fail to meet these expectations, but will also core out the general budget. Supporting the budget policy of a specific sector should be related to the location of the commune and its type (e.g. orientation towards the agri-food sector should not take place in communes where the land conditions do not serve this purpose).

To sum up, it should be noted that the hypothesis set in the study was verified positively. Thus, the economic, social, institutional and political factors of Polish communes have a significant impact on the creation of new enterprises in the medical, creative and agri-food sectors (confirmed as well in another research studies: Stuetzer et al., 2018; Solomon et al., 2021). The factors that mostly caused an increase in activity in the medical sector are: general subventions, grants, gross education ratio, social benefits, the area of the commune covered by the overall plans in force, average tax rate, total area of agricultural land for which non-agricultural use was changed in the plans and registered unemployed people. In the creative sector the most important indicators included: general subventions, gross education ratio, grants, general expenditures, average tax rate, transformed area, and registered unemployed people. The creation of new entities in the agri-food sector was mainly conditioned by general subvention, grants, social benefits, average salary, gross education ratio, and average tax rate.

All in all, the visualization of the determinants was aimed at indicating the directions of changes to policy makers, which should be introduced in the development strategies. The attention was drawn to the differences in the creation of new enterprises between different sectors, which should be a hint for policy makers and result in the creation of a new theoretical framework for development strategies depending on the sectors and their characteristics. Thus, it would allow for the adaptation of tools supporting the local development in the context of the creation of new enterprises, and not the other way around.

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