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The impact of the diversification of revenues on NGOs' commercialization: evidence from Poland

Abstract

Research background: The commercialization of non-governmental organizations through undertaking an activity based on the commercial sale of services and products is a phenomenon which raises controversy among numerous researchers. Traditionally, NGOs act in a sector of social services to solve problems, such as homelessness, exclusion or social pathologies. They also provide different services which cannot be provided by the market, for instance in education, the healthcare system, culture, or art. Driven by a social mission, NGOs introduce their concepts, strongly relying on fees to perform their activity. They also obtain funds in the form of public donations or payments from private or institutional donors. Growing social needs and changes in the governmental policy aimed at reducing social-aid spending have put pressure on NGOs to develop entrepreneurial strategies to gain financial support.

Purpose of the article: The aim of the paper is to investigate how particular funding sources affect the probability of non-governmental organizations' commercialization.

Methods: Data for the analyses have been collected from a national survey of Polish non-governmental organizations. In the analysis of logistic regression, a specially-developed model was used to estimate the probability of NGOs' commercialization, depending on the selected categories of funding sources.

Findings & Value added: An analysis of the results indicates clearly that the likelihood of NGOs' commercialization slightly decreases as a greater number of private external financial sources is used. In contrast with existing literature, which claims that government funding is crowding out commercial activity, this research finds that, to some extent, public

funds positively stimulate the commercialization of NGOs. The contribution of this research is that it introduces the category of internal financing sources of non-profit organizations, which have been overlooked in previous studies. The article provides clear statistical arguments demonstrating that private internal revenues strongly affect the commercialization of the organizations surveyed. The paper is the first to present a model that comprehensively considers the probability of NGOs' commercialization, including private external and internal, as well as public, sources of funding.

Introduction

Existing research devoted to NGOs' revenue diversification provides a lot of interesting information. The issue of revenue diversification and its influence on a greater stability in terms of the revenue structure of non-profit organizations has been tested and well documented (Carroll & Stater, 2009, pp. 947–966). The effects of the strategy of non-profit organizations' revenue diversification in view of resource dependence theory have also been examined (Froelich 1999, pp. 246–268). An attempt was also made to ascertain whether diversification or concentration of revenues in non-profit organizations is more beneficial in terms of optimum financial efficiency (Chang & Tuckman, 1994, pp. 117–135). Research has also proved that numerous and balanced revenue sources can positively influence the stability of non-profit organizations (Evans & Archer, 1968, pp. 761–767; Chabotar, 1989, pp. 188–208). What is surprising, however, is the small number of studies based on research indicating the real influence of revenue diversification on NGOs' commercialization.

Commercialization of NGOs is a process in which NGOs, perceived as non-profit organizations, engage in activities aimed at generating revenue from the sale of services and products (Simpson & Cheney, 2007, pp. 191–122; Dart, 2004, pp. 41–424; Stankiewicz & Seiler, 2013; Zielińska, 2011, pp. 96–104). Eikenberry and Kluver (2004) argue that the nonprofit sector is increasingly often undertaking business activity, adopting market values and methods in the management process and in providing services. Young and Grinsfelder (2011, pp. 543–557) point out that a significant dimension of the commercialization of the non-profit sector is the substantial growth of service fees and sales as a revenue source of non-profit organisations.

The purpose of the commercialization process is to enhance the economic stability of an organization by commercial sales of products and to become independent of financing based on donations and/or philanthropy as well as of changes taking place in the organization's management, stressing its resourcefulness and self-sufficiency (Foster & Bradach, 2005, pp. 92–100). This phenomenon, increasingly noticeable all over the world,

is a significant element of social economy and social entrepreneurship (Mikołajczak, 2017a, pp. 140–152). Most research in this area, however, concerns the American and British markets. Supporting source-dependency theory, researchers stand as non-profits use commercial revenue as a replacement for lost government grants and private revenue (Kerlin & Pollak, 2011, pp. 686–704; McKay *et al*. 2015, pp. 336–354). On the other hand, the researchers emphasize the effect of commercial revenues being crowded out by public funding and private donations (Guo 2006, 126). An inverse association between commercial revenue and public funding has been found by Stone, Hager and Griffin (2001, pp. 276–289). Segal and Weisbrod (1998, p. 108) demonstrated a negative relationship between donations and commercial activity. Enjolras (2002, p.354) has proved that public funding does not crowd out commercial resources. However, LeRoux (2005, pp. 350–362) has found that government funding is a particularly significant factor in driving non-profits' entrepreneurial activities. Eikenberry and Kluver (2004, pp. 132–140) claim that a decrease in public and private financial sources motivates non-profits to overcome market strategies and generate commercial revenue.

In that respect, the aim of the paper is to test whether diversification of revenue by non-governmental organizations affects the probability of non-profit commercialization, and which of the source categories are the most significant. The contribution to the current state of knowledge is to examine what types of funding sources affect the probability of commercialization of non-proft organizations, including private internal and external financial sources, as well as public funding. The present study introduces and analyzes the category of internal private sources of revenues. The article demonstrates a logistic regression model that comprehensively considers the probability of NGOs' commercialization including three groups of revenue sources.

Literature review

The term non-governmental organizations (NGO) covers a very wide spectrum of organizational forms. It is commonly used with reference to those organizations which ensure a certain form of social work and do not belong to the sector of commercial or governmental units. The lack of affiliation with the latter is a defining feature of NGOs (Salamon *et al.,* 2000). The main characteristic of non-governmental organizations is the lack of any connections with state authorities. NGOs are self-governed, independent organizations of a voluntary character, which tend to involve their support-

ers and members in their activities on the basis of common values, interests or concerns. They aim at producing public benefit and are formally registered by the state (Kilby, 2006, pp. 951–963). Since one of NGOs' chief characteristics is that they are not profit-oriented, they are defined as non-profit organizations. Apart from this, there are several more definitions: charity social organizations, voluntary organizations, or civil society organizations. The basis of a third-sector organization's activity is the long-term idea of helping the society. Funding for such goals is mostly obtained from several, diversified sources (Kheing, 2014, pp. 1441–1464).

The are many reasons for the diversification strategy of revenue sources in non-profit organizations. Reasons for adopting numerous and diverse possibilities of capital input of these entities are derived from two main premises. One concerns broadly interpreted issues related to the independence and autonomy of non-profit organizations in the fulfilment of their public mission, while the other is to do with ensuring their financial safety (Plaček *et al.*, 2016, pp. 22–36). It must be stressed that both reasons for the revenue diversification of the entities analyzed are closely interlinked and represent their pursuit of risk limitation, which is related to dependence on providers of financial means (Mikołajczak, 2017b, pp. 135–144).

Non-profit organizations are more complex and flexible, with different values and motivation for action, than for-profit entities are. They participate actively in identifying the problems of the local, as well as the national, community. This scope is frequently international, as well. This is especially important in the context of undertaking independent actions and fulfilling autonomous targets for which the organization was established (Froelich, 1999, pp. 246–268). Diversification of revenue sources enables it to limit control by public and private donors, especially when any one of them leads in capital contributions. Therefore, it increases the autonomy of organizations in fulfilling their public mission and, at the same time, decreases the risk of pressure being put on NGOs' managers to change or give up the organization's priorities (Han, 2017, pp. 1209–1225; Frumkin & Keating, 2011, pp. 151–164).

In turn, among the financial premises, another motivation for NGOs to diversify their revenue sources is the fear of insolvency or a drop in revenues, both of which have been identified as a consequence of the concentration of the latter (Mayer *et al.*, 2014, pp. 374–392). Research shows that non-profit organizations with diversified revenues are characterized by a stronger financial position than those which utilize only a few revenue sources (Chang & Tuckman, 1994, pp. 273–290; Keating *et al.*, 2005). In this context, Hager (2001, pp. 376–392) acknowledges that revenue diversification increases the probability of an organization's survival. At the same

time, he proves that a higher level of revenue concentration contributed to a default of many organizations. It is especially significant during the economic depression, when decreased revenues from one source could have been compensated for from other sources. In turn, Greenlee (2002, pp. 199–2010) shows the relationship between the stability and predictability of revenues and their diversity. Yan, Denison and Butler (2009, pp. 47–67) recommend a diversification of funding sources as a strategy to minimize the risk of financial vulnerability.

Carroll and Stater (2009, pp. 947–966) argue that one of the conditions for a stable operation of non-governmental organizations is, precisely, access to diversified sources of funding. Carmin (2010, pp. 183–202) points out that financial stability is key to NGOs, as it not only provides support that allows goal-oriented activity, but also ensures that there are resources for hiring employees, purchasing equipment and maintaining jobs. Froelich (1999, pp. 246–268), in turn, points out that funding stability ensures not only the continuity of NGOs' activity, but also their predictability and steerability. Regular access to an organization's finance creates opportunities for its permanent operation. In this context, several authors suggest that concentrating funding on a few stable sources enhances the growth of organizations by providing greater financial stability (Foster & Fine, 2007, pp. 46–55; Chikoto & Neely, 2014, pp. 570–588).

Even though most researchers emphasize the advantages of non-profit organizations' revenue-source diversification, it also has some disadvantages. The researchers focus, most of all, on the management aspect of a strategy consisting in diversifying and increasing the number of opportunities to gain capital, which involves complicated procedures and takes time, since, the needs of various donors are different (Froelich, 1999, pp. 246–268). Moreover, in some cases, they can be mutually contradictory (Fischer *et al*., 2011, pp. 662–681). It is much easier and less time-consuming to control and monitor the effects of utilisation in the case of more concentrated sources of financing.

One of the ways to diversify a non-profit organization's revenues is to obtain them from a commercial sale of goods and/or services in return for payment. Running a business by entities under discussion is described as a manifestation of their commercialization (Mikołajczak & Czternasty, 2015, pp. 420–433). The essence of the commercialization process is the creation of a non-profit organization's economic stability by assuring its independence from a financing based on donations or philanthropy, as well as from changes within its management, which stresses the organization's enterprise and self-sufficiency (Foster & Bradach, 2005, pp. 92–100). Weisbrod (1998, pp. 165–174) states that commercialization is a reluctant

response of NGOs to decreasing revenues from donations and to a change in institutional and legal conditions.

The phenomenon of commercialization of nonprofits can be observed the world over. Previous research pointed to various relationships between public funding and commercialization on the one hand and public funding and private donors' support on the other. For example, Segal and Weisbrod (1998, p. 106) found that since donations are the preferred source of revenue, they crowd out non-profits' commercial sales. On the basis of microeconometric empirical evidence, Salamon (2002) finds that, in contrast to the position of supporters of limited public aid, who emphasize the growing activity of private donors that bridge the gap resulting from public cuts, decreased public funding is associated with a drift toward commercial income strategies. Using institutional theory, Eikenberry and Cluever (2004, p. 133) explain how major public policy changes cause a "growing reliance on generation of commercial revenue". This opinion is shared by LeRoux (2005, p. 358), who proves that government funding is a particularly significant factor that drives non-profits' entrepreneurial activities, and by Guo (2006, p. 126), who points to a negative relationship between the sum of public funding and private donations and commercial revenue. Stone *et al.* (2001) point out that "downsized private donations and public funding led to an increase in commercial revenues of nonprofits". An inverse relationship between government funding and commercial income was examined by Enjolras (2002, pp. 352–373). Studying Norwegian voluntary sport organizations, he proved that increased revenues from commercial activity or private inputs do not supersede government financing. The author has found that "the most commercialized organizations are also those receiving the highest degree of public authorities' suport". Svidroňová and Vaceková (2012, p. 449) imphasise the fact that many nonprofits, especially in Central and Eastern Europe, exhibit the financial dependence on the state. Commercialization of this sector creates opportunities to secure institutional identity of this sector.

Research methodology

The data for the present analyses were acquired from the Klon/Jawor Association, which commissioned the Millward Brown company in the third and fourth quarters of 2015 to conduct a national survey on a representative sample of 3,800 Polish foundations and associations. The research was carried out on a random group of associations and foundations drawn from Statistics Poland's REGON register (using December 2014 data), verified

on the basis of information obtained from KRS (National Court Register) and data collected from the bazy.ngo.pl network. The data concerning associations and foundations were collected by means of the interview method, which used two research techniques: 1) 2,975 interviews were carried out employing the CAPI technique (direct computer-assisted personal interviews, conducted by interviewers in an area), 2) 825 interviews were held with the use of the CAWI technique (an online survey). In both cases, the respondents were people performing key functions in their organizations. The data were collected in compliance with the secrecy principle. As part of the report, in the third quarter of 2014, 24 individual in-depth interviews were conducted with non-governmental organization employees and leaders.

Among the entities surveyed, the 3,432 selected had at least one of the financing sources being analysed. These organizations were divided into three categories: external public financing, external private financing and internal private financing (see Table 1).

The logistic regression model developed for the purpose of this paper is aimed at defining the probability of NGOs' commercialization, depending on the three selected sources of financing presented in Table 1. An attempt has been made to quantify and parametrize the likelihood of NGOs' commercialization. Therefore, variables were used regarding the method of financing the NGOs under survey. The possibility of predicting NGOs' commercialization was defined as the probability of NGOs falling, on the basis of survey results, into one of the two binary classes (0 - commercialization did not take place, 1 — commercialization was conducted).

Therefore, the main hypothesis was formulated that the source of funding influences the probability of non-governmental organizations' commercialization; a detailed hypothesis was that private sources have a different impact on the probability of NGOs' commercialization, depending on their derivation — internal or external.

The multiple logistic regression model applied in the studies made it possible to determine the probability of belonging to one of the three classes. The multiple logistic regression method was used to assess the risk of NGOs' commercialization, to indicate its determinants and to assess the impact of selected factors on the commercialization of NGOs.

A study of the direction and strength of the impact of individual funding sources on the assignment to one of the three groups of organizations — those in which commercialization has or has not occurred — will be carried out using the multiple logistic regression method. The logistic regression method is used when the dependent variable assumes two values referring to the fulfillment or non-fulfillment of a given criterion, and when the solu-

tion of the problem is to lead to the calculation of the probability of a given observation falling into one of three classes. The developed model will allow for a simulation of the probability of a given NGO belonging to the group of commercialized organizations.

In the case of the applied regression method, it is not necessary to indicate the nature of the distribution of independent variables, which means that the independent variables do not have to be characterized by a normal distribution or equal variance in each of the groups of NGOs under study. Owing to the nature of the distribution of independent variables in the conducted research, this feature, among other things, determined the choice of the method for selecting the determinants of the occurrence of NGOs' commercialization. The variables examined do not have a normal distribution.

Logistic regression is one of the methods used in problem classification when the variable to be explained has a dichotomous scale. The applied model determines the probability of NGOs' commercialization. The non-linear regression model aims to examine the relationship between many independent variables and one dependent variable with the value of 0 or 1.

The relationship between the dependent variable (the occurrence of NGOs' commercialization) and the independent variables (ie the sources of financing of non-governmental organizations) is represented by the following formula:

$$P = \frac{\exp(\alpha + b_1 \cdot x_1 + b_2 \cdot x_2 + \cdots + b_n \cdot x_n)}{1 + \exp(\alpha + b_1 \cdot x_1 + b_2 \cdot x_2 + \cdots + b_n \cdot x_n)} \ , \tag{1}$$

where:
P – probability of NGOs' commercialization,
α – free expression of the regression function,
b – directional factors with independent variables of the regression function,
x – independent variables - sources of NGOs' financing.

The suitability of the model obtained for the data was evaluated by performing a $\chi 2$ test. The risk of a 5% error of inference and the associated significance level of $p < 0.05$, indicating the existence of statistically significant dependencies, were assumed. The quality of the logistic regression model constructed was assessed using the Hosmer-Lemeshow test, the zero hypothesis of which is a good fit for the model. This test compares the values of the calculated probability with the observed values of the investigated phenomenon of NGOs' commercialization.

While verifying the correctness of the model, a collinearity analysis of explanatory variables was also performed, the effect of which is expressed

by the VIF factor (variance inflation factor). The values assumed by the indicator can be interpreted as follows (Larose, 2008, p. 125):
− VIF≥10 refers to independent variables' strong collinearity,
− the coefficient of 5≥VIF<10 means moderate collinearity,
− VIF<5 means the lack of explanatory variables' collinearity.

The assessment of factors affecting the likelihood of the NGOs being commercialized was also performed based on the unit odds ratio (OR_i), which takes on larger, lower or zero values. An interpretation of the odds ratio suggests that:
− for $OR_i > 1$, the factor described by variable x_i has a positive effect on the occurrence of the studied phenomenon of NGOs (increased chance of occurrence of an event when x_i increases by one unit),
− for $OR_i < 1$, the factor has a destimulating effect, reducing the likelihood of the phenomenon of NGOs becoming more and more marketable,
− for $OR_i = 1$, the factor does not affect the creation of the likelihood of the NGOs to be marketed.

In order to assess the predictive ability of the built-up probability model of NGOs' commercialization, the confusion matrix method was used. The matrix was constructed with dimensions corresponding to the number of decision classes (k × k, where k determines the number of decision classes). The rows of the matrices constituted the correct — observed — decision classes, and the columns showed the predicted decisions. The confusion matrix used in the present research is presented in Table 2.

In the first result field, marked as TP or true posotives, the number of correctly classified cases from the real positive class, i.e. commercialized organizations, was indicated. In the FN field (false negatives), the number of incorrectly classified cases from the class of not commercialized organizations was shown. For the real negative class, i.e. observations in which commercialization was not observed, the fields TN (true negatives) and FP (false positives) were indicated. The former (TN) is the number of correctly classified cases; the latter (FP) is the number of incorrectly ordered cases from the group of commercialized NGOs.

At a later stage of the research procedure, an analysis was carried out of the number of true (TP) and false positive (FP) cases, as well as of the number of true negative (TN) and false negative (FN) cases. This analysis was used to assess the predictive capabilities of the obtained models of the probability of occurrence of NGOs' commercialization by means of the following measures:

- precision or positive predictive value (PPV) defines the accuracy of classification within the recognized class, i.e. the probability that a given NGO will be commercialized with a positive test result:

$$PPV = \frac{TP}{TP+FP},\tag{2}$$

- negative predictive value (NPV) indicates the probability that a given organization will not be commercialized with a negative test result:

$$NPV = \frac{TN}{FN+TN},\tag{3}$$

- likelihood ratio (LR) is the ratio between two chances, i.e. the probability that a positive result of the test will be obtained by an NGO from the group of commercialized organizations and the chance that the same effect will be observed among the non-monetized organizations:

$$LR = \frac{\frac{TP}{TP+FN}}{\frac{FP}{FP+TN}},\tag{4}$$

- Accuracy Effectiveness (ACC) indicates the probability of a correct selection of commercialized organization:

$$ACC = \frac{TP+FN}{TP+FP+TN+FN},\tag{5}$$

- sensitivity, or recall, indicates the classifier's predispositions to detect organizations that have been commercialized in the analyzed group of organizations actually commercialized:

$$sensitivity = \frac{TP}{TP+FN},\tag{6}$$

- specificity is defined as the ability of a test to exclude not commercialized organizations:

$$specificity = \frac{TN}{TN+FP}.\tag{7}$$

The above constituted a set of measures assessing the effectiveness of the constructed model, ie its ability to classify the organization and detect the phenomenon of commercialization within the surveyed group of organizations. The presented characteristics of research methodology clearly identify the strengths of the methodology and its findings. The purpose of this paper is to examine only the sources of revenues that determine the probability of NGO's commercialization. In accordance with this aim, the methodological logic of the study was subdivided. However, it should be pointed out that a number of other factors have also affect the likelihood of NGOs' commercialization.

Results

The logistic regression analysis — where the explanatory variable was a binary variable commercialization of non-governmental organizations, and the explanatory variables were public external financing, private external financing and private internal financing — indicates that all variables determine the probability of NGOs' commercialization. The model achieved the value of the χ2 test at the level of 408.97, with the p value of 0.01, which means that it is statistically significant. The model also accurately reflects actual data (the Hosmer-Lemeshów test indicates a p value of 0.21). Therefore, the hypothesis about the impact of financing sources on the probability of NGOs' commercialization was confirmed.

The parameters of the variables obtained — values of directional coefficients and related p values, odds ratio and the VIF coefficient — are presented in Table 3.

As part of the model, three variables were selected with reference to the likelihood of NGO commercialization, external public financing, private external financing and private internal financing (their p values are less than 0.05). Collinearity analysis suggested the lack of the problem of correlating independent variables, as the VIF factor for variables was not greater than 1.20. The model is therefore described by the following formula:

$$C = \frac{exp(-3{,}616 + 0{,}195\ EPF - 0{,}3052\ PEF + 1{,}0965\ \ PIF)}{1 + exp(-3{,}616 + 0{,}1951\ EPF - 0{,}3052\ PEF + 1{,}0965\ \ PIF)}\ , \qquad (8)$$

where:
C – probability of commercialization,
EPF – external public financing,
PEF – private external financing,
PIF – private internal financing.

The logistic regression analysis demonstrated that:

− increasing the number of external public finance sources caused a slight increase in the probability of NGOs' commercialization, because its directional coefficient b was 0.1951 and the odds ratio was 1,2154,

− increasing the number of private external financial sources resulted in a slight decrease in the likelihood of NGOs' commercialization, as its directional coefficient b was -0.3052 and the odds ratio was 0.737,

− increasing the number of private internal financial sources caused a strong increase in the likelihood of NGOs' commercialization because its directional coefficient was 1.0965 and the odds ratio was 2.9937.

The model demonstrates that the likelihood of NGOs' commercialization decreases with a higher use of private external financial sources and grows strongly as the number of private internal financial sources increases, while confirming the hypothesis of private sources' impact on NGOs. The model also shows a weak increase in the likelihood of NGOs; commercialization using public external sources. Taking this into account, it should be recognized that the acquired financial sources should be public or private in nature for a growth in NGOs' commercialization to take place. To verify the predictive power of the constructed probability model of NGOs' commercialization, the error matrix method was used, the results of which are presented in Table 4.

The number of true positive cases (TP) is 68 observations, and of false-positive cases (FP) — 34 observations. The number of truly negative cases (TN) is 3008, and of false-negative ones (FN) — 322. To assess the model's predictive capabilities, the results of the error matrix and the following coefficients was used: precision (PPV), negative predictive value (NPV), likelihood ratio (LR), efficacy (ACC), sensitivity and specificity. The results are shown in Table 5.

The model correctly identifies two out of three NGOs (the accuracy of the PPV classification was calculated at 66.67%). The probability that the organization was classified as a commercialized with a negative result is 90.33% (NPV). The ratio between the chance that a positive result of the C test will be achieved by NGOs from the group of those who have been commercialized and the likelihood that the same effect will be observed among organizations that have not been commercialized is 15.60 (LR). The effectiveness of C (ACC) is 89.63%, which means that the model correctly shows nine out of 10 cases of commercialized NGOs. The ability of the C test to detect commercialization in the analyzed group of commercialized organizations (sensitivity) is 17.44%. On the other hand, specificity, ie the ability of the C test to exclude non-commercialized organizations, is 98.88%.

Discussion

The diversification of nonprofit organizations' sources of revenue has been widely presented in the current literature. Researchers agree that it has a positive influence on the stability of outputs and on independence, and that it increases the probability of an organization's survival (e.g. Hager, 2001, pp. 376–392, Froelich, 1999, pp. 246–268; Chang & Tuckman, 1994 pp. 273–290). However, the research results show different relationships between particular sources of NGOs' revenue. McCleary and Barro (2008, pp. 512–536) stress that private and public funding sources tend to be complementary. The authors find that revenue from the federal government or from international organizations attract private donations. The complementarity between public and private funds is also pointed out by Nunnenkamp and Ohler (2012, pp. 422–438). They indicate that public funding increases private donations. Using a sample of Ugandan NGOs, Fafchamps and Owens (2009, pp. 295–321) prove that local private sources of income are crowded out by external grants. NGOs suppported by an external grant are less likely to raise donations locally. Nikolova (2014, pp. 485–509) found that when government funding accounts for up to a third of an organization's revenues, it attracts additional private donations. Hovever, a higher level of public support displaces funding from private sources.

It has also been proved that cuts in government funding are a particularly significant factor that stimulates non-profits' entrepreneurial activities (see e.g. Guo, 2006, pp. 233–138; LeRoux, 2005, pp. 350–362). Researchers also highlight the effect of crowding out public support and private financing through commercial revenues. However, research on the relationships between the sources of NGOs' revenue and commercialization primarily concerns NGOs from highly-developed countries. Consequently, the present research results are a real contribution to the research conducted so far.

Certainly, the conditions of NGOs' activity in Poland and other post-communist countries differ significantly from their counterparts in highly-developed countries. As Vaceková *et al*. (2016, pp. 2103–2123) stress, for many non-profits, especially in Central and Eastern Europe, commercialization provides non-profits with financial independence, which constitutes part of their identity, and helps them to emancipate themselves from the state, which used to be paternalistic in the past.

In contrast to the findings made so far, the research results indicate that public aid stimulates NGOs'commercial activity as well as these entities' internal sources of revenue. The latter seems to have been overlooked in research work so far. On the other hand, the survey confirms some re-

searchers' view that external support from private individual and institutional donors reduces the likelihood of NGOs taking up business activity.

Conclusions

From economic and financial researchers' point of view, the diversification of revenues in non-governmental organizations seems to be a rational strategy. It is a chance to increase the revenues, strengthen the stability and predictability of NGOs' functioning. Diversifying the revenues of non-governmental organizations in order to produce commercial revenues is a manifestation of the commercialization of non-profit institutions. At the same time, it is an answer to numerous challenges appearing in that sector's environment. However, literature research points to different relationships However, literature studies indicate different dependencies between particular sources of financing and the commercialization of NGOs.

The evaluation of findings presented in this study proves that some claims made by non-profit scholars can be supported by this study whereas others cannot. The results of the logistic regression model indicate clearly that the dominant view of commercial revenues being crowded out by public funding has not been confirmed. The little evidence confirmed by empirical studies suggests that external private support has a positive effect on the commercialization of NGOs. In contrast with the research results claiming that government funding crowds out commercial activity, this study suggests that the use of public support favors non-profit organizations in making business decisions. This has important implications for NGOs in relations to their more entrepreneurial way of acting. The results respond to the call of policy makers influencing the directions of support for social organizations that the third sector is becoming similar to social enterprises. Additionaly, the results show that internal sources of revenues also have a significant impact on the process of NGO's commercialization. This category of financing, omitted in earlier studies, is all the more important in the discussion of commercialization, that it usually depends to a great extent on the decisions of those responsible for the functioning of the organization.

In the discussion about NGOs' commercialization, further research efforts are needed. The author is aware that the selected and investigated sources of revenues are evolving, and that they do not constitute a spectrum in its entirety. Furthermore, NGOs' commercialization is also influenced by other factors. For example, readers may be curious about how government policies affect commercialization of third sector or what is suitable capital structure that makes the commercialization of NGOs more probable.

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Annex

Table 1. Categories of NGOs' financing

Categories of financing	Sources of financing
1. External public financing (EPF)	− EU funding − Programmes of the European Commission − Foreign funding (excluding the EU) − Central government and administration − Local council
2. Private external financing (PEF)	− Public fund-raising revenues − Financial and non-financial donations from private individuals − Financial and non-financial donations from institutions and companies − Revenues from 1% of the income tax − Support from other foreign NGOs − Support from other domestic NGOs
3. Private internal financing (PIF)	− Membership fees − Interests, profits from endowment capital, deposits, shares and stocks − Revenue from assets − Revenue from commercial activity (sale of products and services) − Revenue from the third sector's paid-for activity (excluding businesses) − Punitive damages − Other sources

Table 2. The general form of the confusion matrix for two decision classes

Item		Observed real classes	
		Positive	Negative
Predicted decision classes	Positive	*TP – True Positives*	*FP – False Positives*
	Negative	*FN – False Negatives*	*TN – True Negatives*

Source: Paśko & Setlak (2016, p. 84).

Table 3. Parameters of independent variables of the logistic regression model

Variable	b	OR_i	p	VIF
Constant	-3.616		0.01	
External public financing (EPF)	0.1951	1.2154	0.01	1.15
Private external financing (PEF)	-0.3052	0.737	0.01	1.20
Private internal financing (PIF)	1.0965	2.9937	0.00	1.12

Table 4. Matrix of errors for model C developed

Item		Observed real classes	
		Positive	**Negative**
Predicted decision classes	Positive	68	34
	Negative	322	3008

Table 5. Assessment of the model's predictive abilities

Item	Value
PPV	66.67%
NPV	90.33%
LR	15.60
ACC	89.63%
Sensitivity	17.44%
Specificity	98.88%