BRATISLAVA UNIVERSITY OF ECONOMICS AND BUSINESS

FACULTY OF ECONOMICS AND FINANCE

SELF-REPORT OF DISSERTATION

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Bratislava 2025

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Self-report of Dissertation

CROWD-OUT EFFECT: GOVERNMENT SUPPORT IMPACT ON PRIVATE DONATIONS IN NON-GOVERNMENTAL ORGANISATIONS

to gain the academic degree "Doctor"
("philosophiae doctor", abbr. "PhD.")

in the field of study economics and management
in the study programme Economics

Bratislava 2025

The dissertation was elaborated in the internal form of doctoral studies at the Department of Public Economics and Public Administration of the Faculty of Economics and Finance of the EU in Bratislava.

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The self-report was distributed:
on August 7th, 2025.

The dissertation defence takes place on August 20th, 2025 at 9.00 am at the Faculty of Economics and Finance, Bratislava University of Economics and Business, Dolnozemská cesta 1, 852 35 Bratislava, before the dissertation defence committee in the doctoral study programme Economics, field of study Economics and Management, appointed by the Dean of the Faculty of Economics and Finance of the EU in Bratislava.

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1. An Overview of the current status of the issues addressed in the dissertation at home and abroad

NGOs play an important role in society, supplementing services that the state or other organizations are unable to provide and responding to the needs and interests of various social groups. Their operation heavily depends on external support from individuals, as well as private and public institutions at the local, regional, national and supranational levels. In the literature, various names for civil society have been used – including civil society, third sector, nonprofit sector, charities, voluntary sector, social economy, social enterprises, or associations differing according to the country's jurisdiction and legal conditions (McMullin, 2023). Therefore, this thesis uses the term 'non-governmental organizations' (hereinafter NGOs), excluding governmentally owned non-profit organizations. NGOs have two main roles in society: to address public service delivery gaps resulting from government and market failure, and to foster social capital development through citizen participation (Frumkin, 2002). These organizations provide services that are not delivered by public bodies, or the business (Weisbrod, 1988), which relates to costs and quality. Public institutions provide public services based on the preferences and expectations of the median voter (Finn, 2010), which may not meet the standards required by citizens seeking higher quality. The aim of NGOs focuses more on social value maximization (Anheier, 2005). A key benefit of NGOs is their ability of operation with lower transactional costs (Weisbrod, 1988) due to the combination of paid workforce, volunteering, and tangible or intangible donations, resulting in costs savings through co-production of public services in collaboration with other NGOs (Pestoff, 2006).

As the pricing policies of NGOs depend on the level of subsidies, which may decrease the price of public service provided by an NGO, (Jegers, 2023), the same principle applies also to private donations as well. The eligibility for receiving subsidies depends on various factors, such as a country's legislation, regulations, administrative procedures that NGO must face, and alignment of the NGO's mission with government goals (Jegers, 2023). In the terms of funding sources and

their origin, public services provided by NGOs are supported based on the government level (municipal, regional, or central) responsible for the aims and provision of those services. An NGOs' funding strategy must also account for the donors' structure composition (individuals or firms) to strategically focus fundraising campaigns (Sargeant, 2009), as different aspects must be considered.

Government decision to support NGO shows a signaling effect of better reputation and quality and more secure option to invest donors' money related to donations into NGOs (Borgonovi, 2006). In the case of donation, donors are fully informed about the government subsidies into NGO market and other opportunities of donating (Andreoni and Payne, 2001). The most important decision related to choice between private donations and government subsidies is being made by NGO itself. While budget and funding strategy setting, NGO needs to be aware of the most appropriate combination of private donations and government subsidies what secure total 'unearned' revenue maximum level, or other more suitable strategy. While NGO manager wants to analyse this relationship, there is necessary to look at marginal rate of substitution between private donations and government subsidies. Interaction between government subsidies and private donations in an NGO can be examined through crowd-out effect analysis, which explains the marginal rate of substitution between government support and private donations and examines whether an NGO perceives government support as a substitute (crowd-out) or a complement source of funding (crowd-in).While focusing on donors' intentions to contribute to an NGO based on their awareness of government subsidies, another definition coexists: the crowd-out effect describes a situation where government subsidies to NGOs correlates with a decrease in private donations; while crowd-in effect reflects the positive impact of government support leading to increasing private donations (Andreoni et al, 2014; Jegers, 2023). Considering indifference curve (top of the Fig.1 by Brooks, 2000), marginal rate of substitution can be described as:

$$MRS_{D,S} = \frac{dD}{dS} = \frac{\Delta MU_D}{\Delta MU_S}$$

which is represented by a derivative of private donations D with respect to government subsidies S, expressing share of change in marginal utility of private donations ΔMU_D and a change in marginal utility of government subsidies ΔMU_S (Varian, 2010). If $MRS_{D,S}$ has a negative value, then an NGO considers government support as a substitute (crowd-out effect) (Varian, 2010). On contrary, a positive value of $MRS_{D,S}$ indicates that NGO manager prefers to complement private donations with government subsidies (crowd-in effect) (Varian, 2010).

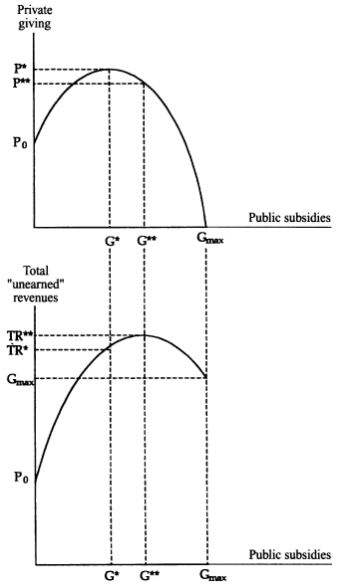

Figure 1. The relationship between total 'unearned' revenue and public subsidies in nonprofit organization
Source: Brooks (2000)

Brooks (2000) reveals that the indifference curve of private donations and government subsidies has a concave (inverted U-shape) which is caused by private donations function that is a function of government subsidies in quadratic form:

$$D = aS^2 + bS + c,$$

where S is a representant of government subsidy.

Therefore, a threshold of the maximum level of private donations occurs at the top of the curve and the function decreases behind this threshold (top of the Fig.1 by Brooks, 2000). P* represents the threshold with maximum amount of private donations combing G* amount of government subsidies. If an NGO chooses this combination of private donations and government support, the total 'unearned' revenue is at the level of TR* that does not represent the maximum level of total 'unearned' revenue (bottom of Fig.1 by Brooks, 2000). It is expected that a total 'unearned' revenue is a sum of private donations and government subsidies: TR=P+G (Brooks, 2000). On the contrary, if NGO chooses to reach maximum level of total 'unearned' revenue TR**, NGO must choose combination of government subsidies at the level of G** and private donations at the level of P**. In this situation it is obvious that government support is higher compared to the option of maximizing private donations. Moreover, private donations decrease. Private donations P_0 is at a certain level despite zero government subsidies, when TR is at the level of P_0. The maximum level of government subsidies G_{max} relates to private donations at the zero level, because donors do not want to contribute to NGO that is fully covered by government as considered as public organization paid by donors' taxes (Brooks, 2000; Grasse et al, 2022). Based on the provided description, the choice of NGO needs to consider also the changing effects of private donations levels. Therefore, NGOs receiving government grants can face two situations – either crowd-out effect or crowd-in effect. While NGO decides to combine amount of private donations necessary to attract before reaching a threshold P* (increasing part of a curve) and level of government subsidies between zero and G*, there is a crowd-in effect of government subsidies on private donations, which explains the donors' motivation to contribute to NGO by private donations despite received government subsidies (Payne, 1998). In the case NGO chooses to receive higher government subsidies G** due to potential

of maximization of total 'unearned' revenue, an NGO has to count with decreased income related to private donations at the level of P**(decreasing part of a curve), which reflects the crowd-out effect of government subsidies on private donations (Payne, 1998). This situation happens when donors are aware of government support and are not willing to donate to NGO in such amount compared to first option.

Results of previous crowd-out analysis varies according to used analysis– organization level (Payne, 1998; Andreoni and Payne, 2003; Bornogovi, 2006; Neto, 2018; Grasse et al., 2022), individuals' level based on the taxes or other reporting (Kingma, 1989; Sutter and Weck-Hannemann, 2004; Bönke et al, 2013), experimental labs (Andreoni, 1993; Gronberg et al. 2012), macroeconomic level (Sokolowski, 2012) or subsectoral level (Brooks, 2003).

Based on the meta-analysis of De Wit and Bekkers (2017) containing 73 crowd-out studies, there is mix crowd out and crowd in effect (Reeson and Tisdell 2008; Blanco et al 2012; Isaac and Norton 2013; Lilley and Slonim 2014), however the most of studies show crowd-out effect results (Andreoni 1993; Chan et al. 1996; Chan et al. 2002; Eckel et al, 2005; Galbiati and Vertova 2008; Galbiati and Vertova 2014; Gronberg et al. 2012; Güth et al, 2006; Hsu 2008; Luccasen 2012; Sutter and Weck-Hannemann, 2004). As the results of experiments show that a one-dollar increase of government subsidies causes a 0.64-dollar decrease in private donations, compared to non-experimental data crowd-in effect of 0.06-dollar, therefore it is more appropriate to measure crowd-out effect through data analysis (De Wit and Bekkers, 2019). Moreover, the most appropriate is the organizational level, which shows the direct effect of government subsidies on private donations in NGOs, that helps organizations to align their funding strategies and government to set up funding strategies based on government goals.

De Wit and Bekkers (2017) found out that most of the studies are from the US showing mixed results of crowd-out and/or crowd-in depending on the used method, accompanied by other non-European countries such as Canada resulting in crowd-out effect (Payne, 1998;

Callen 1994; Chan et al. 2002), Australia with mix results from experiments (Reeson and Tisdell, 2008; Lilley and Slonim, 2014), and Taiwan with crowd-out effect results (Hsu, 2008). Aiming on European countries, results varies across the countries – analyses of Spain in both experiments and data analysis (Marcuello and Salas, 2000; Blanco et al, 2012), Germany results signal mixed results of crowd-out and crowd-in effect (Paqué 1986; Bönke et al, 2013), Austrian organizations faces crowd-out effect from experiments (Sutter and Weck-Hannemann, 2004), Italian experiments shows also crowd-out effect (Galbiati and Vertova, 2008, 2014), analyses of UKI results shows mix of the crowd-out and crowd-in effect (Steinberg, 1985; Posnett and Sandler, 1989; Khanna et al, 1995) and Israel's results revealed crowd-out effect (Weinblatt, 1992) based on the De Wit and Bekkers' (2019) analysis. However, there is also study of Hladká et al (2017) examining the Czech Republic with partial crowd-out effect results based on NGOs' survey. Across the European countries, there are a lot of experiments, or tax surveys, however, there is a lack of analysis covering organizational level and using government subsidies approach which is more accurate compared to experiments or organizations expenditures. Moreover, there is only the Czech Republic as a representant of CEE, revealing a gap across other countries which were facing also transition economies challenges.

Considering NGO subsectors across crowd-out analyses, just a few studies were aimed at NGO subsector analysis or just focusing on one subsector, because most of studies examined combined subsectors altogether. These studies are mainly covering the US and Canada (De Wit and Bekkers, 2019). The highest number of studies (10) analysed culture subsector in the US with results of crowd-in, crowd-out, or mixed results (De Wit and Bekkers, 2019). Education-aimed organizations (4 studies) from the US were examined with results of crowd-out or mixed results of crowd-out and crowd-in effect (De Wit and Bekkers, 2019). Health NGOs in Canada were facing the crowd-out effect and social care organizations in the US crowd-out effect results or mixed results (De Wit and Bekkers, 2019).

There are also other studies focused on specific types of organizations which are a part of various NGO subsectors. These analyses were provided at the organization's level. Shelters' analysis shows that government grants crowd out private donations (Payne, 1998). Across the theatres, the crowd-out effect of government funding on private donations (Borgonovi, 2006). Smith (2003) finds the crowd-in effect across dance firms, Paque (1982) crowd-in effect in art activities in Germany. Partial crowd-out effect in social service (Andreoni and Payne, 2001), public radio stations (Kingma, 1989). Partial crowd-in effect in UKI health organisations (Khanna et al, 1995), also reported by Abrams and Schmitz (1978) on education, health, and welfare organizations. Andreoni and Payne (2009) examined organizations in the social services (robustness check involved) with the results of crowd-out at the level of 72.7%, while 1k government subsidy crowds out 727USD in private donations.

However, the most structural overview of nonprofit subsectors in Canada at the organizational level was provided by Grasse et al (2022) who examined the welfare organizations (care other than treatment), protection of animals, hospitals, teaching institutions and institutions of learning, and organizations focused on benefits to community (libraries, museums and other repositories). Results reflect differences across sub-sectors based on the government funding strategy, their relationship with nonprofit (Grasse et al, 2022). Welfare organizations face crowd-in effect of the aggregate government subsidies on private donations; moreover, analysis shows no significant results for local government support, and the lower crowd-in effect of the provincial government support on private giving compared to federal funding (Grasse et al, 2022). In the case of animals' protection charities, there are no significant results of aggregated government subsidies; however, the various government level analysis shows the lack of results only signalling the occurrence of crowd-out effect at the federal and provincial funding and crowd-in effect at the local government subsidies (Grasse et al, 2022). The sub-sector of hospitals' analysis shows the crowd-out effect for federal and municipal funding (Grasse et al, 2022). Crowd-out is caused by domination (87% of organization

income) of provincial funding, because lower donations reflect the character of public good that should be supported by government (Grasse et al, 2022) and impacts also overall results of analysis. Teaching institutions and institutions of learning have mixed results – provincial funding causes crowd-in effect, federal subsidies crowd-out effect, and no significant results at the municipal level of support (Grasse et al, 2022). Subsector of libraries, museums, and other repositories has the significant results only at the provincial level of government despite the higher portion of municipal funding; analysis of this sub-sector did not find any significant results at the municipal and federal level (Grasse et al, 2022).

Two approaches used in the crowd-out analysis. Composed sum of all government subsidies can be examined on private donations. Firstly, total government support amount is necessary to know during the budget planning process and in the case of EU countries due to de minimis condition eliminating maximal amount of government support received in past 3 years based on Commission Regulation (EU) No. 1407/2013. Second approach uses analysis of various government levels providing subsidies – highest providers of government support are municipalities which are also the closest to donors (Grasse et al, 2022), therefore in lower government support levels crowd-in effect found and at higher government levels support a crowd-out occurs.

Previous studies provided results of various factors impacting crowd-out and crowd-in effect:

a. level of subsidies – NGOs receiving lower levels of subsidies are more likely to face crowd-in effect of government support on private donations, in the case of highly government- subsidized NGOs, the crowd-out effect occurs (Borgonovi, 2006; Harrison et al., 2023);

b. diversification of analysis based on the private and corporate donors or foundations – there are differences across the sample – private donations bring crowd-in effect, corporate donors no significant impact and foundations create crowd-out effect (Hughes et al., 2014);

c. the age of organization – younger organizations are more dependent on private donations, before received government subsidies. Therefore, Heutel (2014) found that younger organizations demonstrate crowd-in effect, which may be caused by information asymmetries that are minimized by time;

d. the size of organization – the largest organization attracting higher amount of government subsidies crowd in private donations (Harrison et al., 2023). Andreoni (2014) claims that small organizations do not prove either crowd-in or crowd-out effect;

e. NGO subsector – Grasse et al. (2022) and Brooks (2003) found various results of crowd-in and crowd-out across the NGO subsectors. Significant results of crowd-in have been found in social organizations (Grasset et al., 2022; Heutel, 2014). NGO subsectors such as hospitals were facing crowd-out effect and other organizations both according to government support level (Grasse et al., 2022).

However, there is a possibility to examine also another factors. Due to the EU rule to funding assignment, that preferences of subsidizing entities focus on lagged regions that have GDP below the EU average (less than 75% of GDP), a development level of a region can be examined in the further analysis. Moreover, a broader overview of NGO subsectors analysed within a single country could reveal a bigger picture of NGO funding preferences related to government subsidies and private donations.

1.1. Funding of NGOs in Slovakia in 2014-2022

Slovakia had the highest number of NGOs per capita among the Visegrad group (V4), with a total of 70k NGOs in 2022 (Johanesova, 2025). However, the relationship between the government and NGOs is largely symbolic, limited by access into government subsidies (Strecansky, 2017). This issue primarily involves EU funds involving, which require navigating bureaucratic processes or securing long-term funding opportunities across various sectors to sustain NGOs services (Strecansky, 2017). Conversely, the government must ensure the long-term sustainability of public funding; therefore, analysing NGO sectors and their reliance on private donations is essential to diversify NGO funding portfolio and avoid one-source funding. For this reason,

examining the crowd-out effect of government subsidies on private donations presents a critical opportunity for policy makers and addresses a research gap in the NGO sector studies.

Given the availability of data about tax assignation (since 2009), the introduction of a centralized porta for all government levels (since 2011), the EU programming periods (2007-2013 vs 2014-2020) and the increase in the numbers of NGOs after 2014, the analyzed period was unified to 2014-2022. One reason is a strategic anchoring of the NGO support in the EU and Slovak documents. Additionally, the expansion of NGOs after 2014 further justifies this timeframe. The following sections analyse tax assignation, and local, regional and government support to the NGOs , alongside total EU support.

Tax assignation (559.15 mil EUR) was allocated to 22,592 NGOs during the period 2014-2022. Local support amounting to 30.53 mil EUR was provided to 3,508 NGOs. Regional governments allocated 80.75 mil EUR to 2,702 NGOs. Government support (1,826.35 mil EUR) was distributed to 4,987 NGOs. Total EU support, which includes Erasmus+ and EU structural funds totalling 395.29 mil EUR, was granted to 1,074 NGOs.

All NGOs received the highest amount of tax assignation (80 mil EUR) in 2022, while the smallest amount (47.34 mil EUR) was recorded in 2014. The entire NGO sector received support from local authorities with the highest amount of 28.05 mil EUR (in 2022) and the smallest amount of 95.2k EUR (in 2019). The largest amount of regional support (34.39 mil EUR) was allocated to all NGOs in 2022, compared to the smallest amount (2.61 mil EUR) in 2014. The largest amount of government support (272.43 mil EUR) was received by all NGOs in 2022, contrasted with the lowest amount (124.57 mil EUR) in 2014. The largest amount of total EU support (95.57 mil EUR) was granted to all NGOs in 2019, while the minimum (4.53 mil EUR) occured in 2014.

Differences across NGO subsectors are obvious at all levels of government support and tax assignation, which represents private donations. The highest amount of *tax assignation* was received by interest-based organizations (236.9 mil EUR), followed by social care

NGOs (146.6 mil EUR) and sport NGOs (83.8 mil EUR). The lowest amount of tax assignation was received by art NGOs (1.22 mil EUR). The highest amount of *support from local governments* was allocated to interest organizations (13.9 mil EUR), followed by sport NGOs (10.5 mil EUR) and social care NGOs (1.9 mil EUR). The lowest amount of support from municipalities was received by other type of NGOs (22.7k EUR), followed by art NGOs (43.8k EUR) and professionals' NGOs (250k EUR). The highest amount of *regional support* was provided to interest organizations (40.7 mil EUR), followed by healthcare (15.1 mil EUR) and social care NGOs (12.7 mil EUR). The lowest amount of regional support was received by other types of NGOs (35k EUR), followed by art NGOs (123k EUR) and professionals' NGOs (499.5k EUR). The highest amount of *government support* was received by sport organizations (712.1 mil EUR), followed by healthcare (385.9 mil EUR) and interest-focused NGOs (379.7 mil EUR). The smallest amount of government support was allocated to other types of NGOs (660k EUR), followed by art NGOs (4.6 mil EUR) and education-aimed NGOs (29.8 mil EUR). The highest amount of *total EU support* was allocated to interest organizations (206.1 mil EUR) during 2014-2022, followed by social care NGOs (64.4 mil EUR) and education-aimed organizations (42.3 mil EUR). The smallest amount of total EU support was provided to art NGOs (579k EUR), followed by other types of NGOs (1.7 mil EUR) and professionals' organizations (13.5 mil EUR).

Private donations, in a form of tax assignation, transferred to *NGOs younger than 2 years* during 2014-2022 were totalled 23.82mil EUR, compared to 535.3 mil EUR for older NGOs. Overall, NGO younger than 2 years received 124 mil EUR in total from all types of government, while older NGOs received 2,210 mil EUR. NGOs younger than 2 years received 1.45 mil EUR from municipalities, 6.35 mil EUR from regional offices, 79.25 mil EUR from central government and 36.5 mil EUR from the EU. *NGO older than 2 years* were allocated 29 mil EUR from local governments, 74.4 mil EUR from regional governments, 1,747 mil EUR from government and 359 mil EUR from the EU.

The EU uses a criterion of developed and lagged regions to guide the distribution of EU funds within countries. Bratislava region is classified as an EU-average region (developed), while other Slovak regions fall under lagged regions. Examining various levels of government support, regional disparities are evident. NGOs in the Bratislava region received 12.87 mil EUR from municipalities, 14.8 mil EUR from regional government, 1,013 mil EUR from central government and 115 mil EUR from the EU sources. NGOs in lagged regions received 17.66 mil EUR from municipalities, 65.94 mil EUR from regional governments, 812.98 mil EUR from central government and 280.2 mil EUR in total EU support.

2. The aim and focus of the dissertation

The main aim of the dissertation is to examine the relationship between government support and private donations among NGOs in the context of the Slovakia at the sub-sectoral level.

To achieve the main objective, the following research questions were formulated:

1. Does government support crowd out private donations across NGO sub-sectors?
2. Does crowd-out effect vary across NGO sub-sectors due to government level providing subsidies?

The analysis of crowd-out effect factors comprises two versions of Tobit models using total government support and various levels of government support (Grasse et al, 2022). Tobit model specifications examines three factors - NGO subsectors (Grasse et al, 2022); NGO age (Heutel,2014); development level of region.

3. Methodology of work and research methods

Analysis focuses on examination of the relationship between government support and private donations at the organizational (NGO) level during the period 2014-2022. Achievement of this objective requires the utilization of data from 25,748 NGOs that were split into NGO sub-sectors according to SK NACE code in their registration using international NPO sub-sectoral methodology (Jegers, 2023) –

interest (13,992 NGOs), sport (6,499 NGOs), membership (2,567 NGOs), social (1,328 NGOs), professionals (493 NGOs), education (465 NGOs), health (274 NGOs), art (113 NGOs), and others (17 NGOs).

The dependent variable is the portion of private donations received from tax assignation by individuals and companies. Independent variables include the portion of support from local, regional, central government and the European Union which includes subsidies from EU structural funds and program Erasmus+. Control variables are represented by NGO age up to 2-year, the number of NGOs in a district, disposable income in a district, election participation in a district, unemployment rate in a district, other nationality size in a district, number of criminal incidents in a district, numbers of cities in a district, GDP in a region. These variables were collected from various sources. Private donations represented by tax assignation data were obtained from Financial Directory of the Slovak Republic, data about local, regional, and central government support sourced from Central Register of the Agreements of Slovakia, data about EU support were retrieved from ITMS+ system and Erasmus+ platform.

Private donations are represented by tax assignations from individuals and companies. This type of voluntary contribution creates one of the pillars from donations in the Slovak NGOs (Murray Svidroňová et al, 2023). Missing portion of private donations will be addressed through suitable econometric model. These data are aggregated as a sum of EUR at the NGO level for 2014-2022. This approach using private donations has been used also in the previous studies of Grasse et al (2022), Neto (2018), or Borgonovi (2006).

Local, regional and government support represents the total sum of funding allocated to an NGO by each government level during 2014-2022. This approach mirrors previous studies of Grasse et al (2022), Neto (2018), or Borgonovi (2006). The inclusion of total EU support representing a sum of EU structural funds and Erasmus+ support in the period 2014-2022 is a new approach in the literature.

Control variables balancing our model have been taken from previous studies of nonprofit location, private donations factors, or other crowd-

out effect studies. NGOs with the age up to 2-year are less likely to receive donations compared to older organizations which have already had a larger pool of donors (Marcuello and Salas, 2000). Higher number of NGOs in a district represents a higher competition related to private donations, that means smaller proportion of private donations received (Borgonovi, 2006). Disposable income in a district has a positive relationship with private donations (Borgonovi, 2006; Bekkers and Wiepking, 2011; Heutel, 2014). The literature about civic participation evaluates pro-social behaviour of citizens based on giving and volunteering in third sector, political engagement including election participation (Cnaan and Park, 2016). Therefore, election participation in a district is examined as a factor of increasing private donations, using assumption that people interested in election participation are more willing to donate. Heutel (2014) and Payne (1998) used unemployment rate (in a district) in their analysis, because it has a negative relationship with private donations. People are willing to donate more if a higher unemployment rate accompanied with higher poverty is in an area. Diversity in a community related to race, ethnicity or religion requires public services which government cannot provide; therefore, NGOs tend to participate such communities (Weisbrod, 1998). Due to this reason, people living in these communities or areas tent to donate more to NGOs providing services for diverse communities, in this analysis described by other nationality size in a district. People's need can reflect to donate to NGOs to secure low criminal rate in their district (Bekkers and Wiepking, 2011). More developed regions have a positive relationship with private donations, because people have higher demand for a better quality of public services than average and also higher salaries (Brooks, 2006). Across the literature, there are also used sub-sectoral dummies in order to identify sectors increasing private donations (Brooks, 2006; DeWit and Bekkers, 2011).

Analysis will use the Tobit model, which was chosen specifically based on the recommendations of previous studies (Neto, 2018). Tobit model is a preferred model over OLS models, which are unable to handle cornered data, as well as GMM and GLE models calculating

direct elasticities. The advantages of the Tobit model were considered more appropriate due to following specifics:

- private donations are not fully observed data, only tax assignation data (in further text mentioned just as 'private donations') are available, they are omitted and represent a problem which can be addressed using corner solution of the Tobit model,
- private donations are either zero or higher value, therefore there are just positive values,
- the crowd-out effect analysis relates to calculation of private donations sensitivity to changes government support that is possible to calculate through the Tobit model (Wooldridge, 2012).

Brooks' (2000) study recommends examining non-linear relationship between government support and private donations. Every NGO i in the period t receives the amount of private donations calculated through the Tobit model implementing a following equation:

$$\ln(y_{it}^{*}) = \beta_0 + \beta_1 \ln(x_{it}) + \beta_2[\ln(x_{it})]^2 + \gamma \cdot \overline{\ln(x_i)} + \delta \cdot Z_{it} + \epsilon_{it}, \epsilon_{it} \sim N(0, \sigma^2)$$

where $ln(y_{it}^{*})$ represents private donations, $ln(x_{it})$ reflects government support (either at the municipal, regional, government or EU level), $\overline{ln(x_i)}$ is a Chamberlain-Mundlak term, Z_{it} are control variables of a district or a region to which NGO belongs and ϵ_{it} represents error term. As analysed crowd-out effect represents examination of government support effect on private donation accompanied with non-linear relationship between them, the classic OLS cannot be used, but the cornered Tobit solution is suitable for this situation (Wooldridge, 2010).

Firstly, a composite variable for total EU support has been created as the aggregation of EU structural funds and Erasmus+ program allocations for NGO entity i in the year t. Mitigation of normality issues in the dataset have been proceeded by log-log transformations applied to both dependent (Y) and independent variables (X). Consistency with standard practise for handling zero values in logarithmic transformations, all observations with zero values have

been transformed into: X_it=ln(X_it+1), and Y_it=ln(Y_it+1), to avoid undefined values if any dependent (Y=0) and independent variables (X=0) (Wooldridge, 2010). The same transformation approach has been used for control variables. Theoretic assumption of delayed donor responsiveness to NGO fundraising campaigns and used government subsidies in the past year (Grasse et al, 2022; Neto, 2018), all levels of government support, have been lagged by one period (t-1) to account operational lags.

Test of the corner solution model has been provided through AIC and BIC values testing of the left-corner, right-corner and two-limit model version, to choose the model with lowest values of AIC and BIC (Konishi and Kitagawa, 2008). Based on results, the most appropriate Tobit model is confirmed with left-corner solution based on the complexity of the dataset. As the Tobit model using a panel data estimates a random effects model, it does not handle serial correlation in the time-series shocks, therefore, it is necessary to use the classic Tobit model with robustness check.

Due to unobserved effects in the Tobit model with corner solution, it is also suitable to use the Chamberlain-Mundlak device allowing correlation between the heterogeneity and the supports'(x) variables (Wooldridge, 2010). Chamberlain-Mundlak term expresses an average government support in a district to which NGO belongs:

$$\overline{ln(x_i)} = \frac{1}{T} \sum_{t=1}^{T} ln(x_{it}).$$

A further important Tobit model setting involved the usa of the classic Tobit model with cluster id at the NGO level.

Another key feature of the analysed dataset is the inclusion of all NGOs that receive either private donations (in the form of tax assignation), either local, regional, governmental, and/or total EU support. This approach used by Brooks (2000) ensures a robustness check rather than limiting the analysis to government supported organizations and risking biased results.

Interpretation of Tobit results have been provided based on margins. These results can be incorporated into the initial function of private

donations, that expects that is a function of government subsidies. If margins' results have a significant result at the β_1 only (β_2 not significant), then β_1 result is considered, and private donations' function is classified as a *linear function* (Wooldridge, 2012), that means that relationship between private donations and government subsidies is linear. On the other hand, if margins' results have significant results on bothβ_1 and β_2, or only at β_2, both margins' results considered, and private donations function is identified as a *quadratic function* (Wooldridge, 2012). In the case of quadratic functions, there is important to identify a shape of curve of private donations function, that can be proceed based on β_2, which is received from second derivatives of private donations function. If β_2>0 means, that private donations function is a U-shape curve indicating crowd-out effect at the decreasing part of curve and crowd-in effect at the increase part of curve. On contrary, β_2 <0 then private donations function is an inverted U-shape curve reflecting crowd-out effect at the decreasing part of curve and crowd-in at the increasing part of curve. Turning point of a curve is a threshold, that is possible to be calculated using the first derivative of private donations' function. As margins analysed through the log-log transformation, it is important to use the natural logarithm incorporating into the following equation:

$$\frac{\partial ln(y*)}{\partial ln(x)} = \beta_1 + 2\beta_2 ln(x) = 0 \Longrightarrow ln(x) = -\frac{\beta_1}{2\beta_2}.$$

Private donations' function has a threshold if latent variable $y*$ equals zero, that happens at a certain amount of government support. Calculation of a threshold of private donations' functions at a certain level of government subsidies is possible through conversion of this function to the x-scale (amount of support) by exponentiating:

$$x_{threshold} = exp\left(-\frac{\widehat{\beta}_1}{2\hat{\beta}_2}\right),$$

where x represents a threshold, and $\widehat{\beta}_1$ and $\hat{\beta}_2$ are margins' results (Wooldridge, 2012). Result of this calculation expresses the amount

of any level of government support that represents a point of curve where crowd-in and crowd-out effect of government subsidies on private donations change each other.

4. Structure of the dissertation

Dissertation thesis has been organized into eight chapters that collectively aim to provide an understanding of the relationship between various levels of government support and private donations in the context of Slovakia. The first chapter explores topics such as CEE transition countries and development of civil society, the role of NGO in the provision of public services, and their funding, alongside the crowd-out effect of government support on private donations. The second chapter presents an overview of NGOs in the Slovak Republic. The third chapter describes regional and thematic distribution of private donations and various levels of government support. The fourth chapter defines the aim of this thesis, introduces the research questions and outlines the main objectives. The fifth chapter describes the dependent; independent and control variables used in this study. The sixth chapter introduces the methodological framework of this dissertation research. The seventh chapter presents the empirical results of this thesis. The eighth chapter contains a discussion, including limitations of this research and policy recommendations. The conclusion summarizes the main findings and explains the contribution of this study.

5. The results of the work

Interpretation of crowd-out results proceed from marginal rate of substitution between government subsidies and private donations in a NGO; therefore, it is important to explain calculated results from a perspective of NGO. Curve of private donations functions depends on provided government support; therefore, linear or quadratic relationship can be observed. In the case of quadratic relationship, a curve of private donations' function can be in a U-shape (convex) or in an inverted U-shape (concave). Threshold of a private donations functions represents a point in which the marginal rate of substitution

(crowd-in and crowd-out effect) is changing. Threshold is the number of subsidies, when NGO decides if government subsidies considered as a complementary source of funding (crowd-in) or a substitute of private donations (crowd-out).

3.1. NGO sub-sectors

Analysis of all NGOs shows that a threshold of local support is at the level of 181.967 EUR ($p<0.01$) which belongs to the minimum of U-shape curve of private donations function ($\beta 2>0$). Local support higher than a threshold crowd in private donations. The 1.480% of local support observations are above a threshold of private donations (crowd-in) and 98.520% of local support observations are below a threshold (crowd-out). Regional support has a positive relationship with private donations causing crowd-in effect. In the case of government support, there is a threshold at the level of 130.807 EUR ($p<0.01$). Private donations functions has a U-shape curve ($\beta 2>0$). Analysed dataset contains 7.030% of government support observations above a threshold and 92.970% of government support observations below a threshold. In the case of total EU support, there is a negative relationship with private donations causing crowd-out effect.

	Threshold	
	b	se
Local support	181.967***	65.078
Government support	130.807***	27.483
Observations	231786	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 2. Threshold of private donations function at the level of local and government support in all NGOs
Source: own proceeding

Interest NGOs has a threshold of private donations function at the level of local support in the amount of 334.390 EUR. Private donations function has a U-shape curve. However, threshold result is not significant, because 124,046 observations equal zero. Regional support has a positive relationship with private donations causing crowd-in. In the case of government support, a threshold is at the level

of 76.252 EUR ($p<0.01$) which is the minimum of private donations U-shape curve ($\beta2>0$). Analysis reveals that 7.333% of government support observations are above a threshold of private donations function and 97.974% below this threshold. There are no significant results related to crowd-out effect of total EU support.

	Threshold	
	b	se
Local support	334.390	290.910
Government support	76.252***	26.965
Observations	125955	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 31. Threshold of private donations function at the level of local and government support in interest NGOs
Source: own proceeding

In the case of sport NGOs, there are no significant results of regional and total EU support margins. A threshold of private donations function at the level of local support is at the amount of 124.84 EUR ($p<0.01$) representing the minimum of U-shape curve ($\beta2>0$). Analysis shows that 2.026% of local support observations are above a threshold of private donations function and 97.974% are below this threshold. Government support has a threshold at the level of 52.059 EUR representing the maximum of inverted U-shape curve of private donations ($\beta2<0$). Only 2.252% of government support observations are above a threshold of private donations (crowd-out) and 97.455% of government support observations are below this threshold (crowd-in). However, the results of threshold at the level of government support do not show any significant results, because 56,991 observations equal zero.

	Threshold	
	b	se
Local support	124.840***	41.681
Government support	52.059	46.030
Observations	125955	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 42. Threshold of private donations function at the level of local and government support in sport NGOs

Source: own proceeding

Social NGOs do not have any significant results at the level of local, government, and total EU support. Regional support has a threshold at the level of 231.117 EUR. Private donation's function has an inverted U-shape curve ($\beta 2<0$). Analysis shows that 4.027% of regional support observations are above a threshold of private donations function (crowd-out) and 95.973% are below this threshold (crowd-in). However, threshold result does not show any significance, because 11,478 observations equal zero.

	Threshold	
	b	se
Regional support	231.117	451.876
Observations	11970	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 5. Threshold of private donations function at the level of regional support in social NGOs

Source: own proceeding

NGOs focusing on education do not have any significant margins results at the level of local and governmental support. Regional support has a positive relationship with private donations causing crowd-in effect. In the case of total EU support, there is a threshold at the level of 2328.366 EUR representing the minimum of U-shape curve of private donations ($\beta 2>0$). Analysis shows that 9.199% of total EU support observations in education-aimed NGOs are above a threshold of private donations (crowd-in) and 90.801% of private donations are below this threshold (crowd-out). However, the result of a threshold does not show any significance, because 3,798 observations equal zero.

	Threshold	
	b	se
Total EU support	2328.366	1654.252
Observations	4185	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 63. Threshold of private donations function at the level of total EU support in education-aimed NGOs

Source: own proceeding

Focus on NGO subsectors shows that, in the case of interest NGOs, the thresholds of private donations' function are low at the local (334.390 EUR) and government (76.252 EUR) support due to a higher proportion of zero observations related to subsidies. There are contradictory findings regarding the crowd-in effect in regional support and a higher share of observations reflecting a crowd-out effect in government support. Results for this NGO sub-sector cannot be compared to other studies due to a lack of comparable research. However, governments allocate 379.7 mil EUR (government support) and 206.1 mil EUR (total EU support) to the largest NGO sub-sector in Slovakia. Interest organisations focus on providing services related to hobbies such as dance, wine, critical thinking, or plane modelling. Certain levels of these services fall under the competences of municipalities receiving subsidies targeting the 5- to 15-year-old population; under limited conditions, adults may also participate in these organisations. Consequently, people are more willing to donate to such organisations in districts with increasing disposable income and criminal incidents. This aligns with the theory of Bekkers and Wiepking (2011), which posits that individuals are inclined to donate to enhance the security of their localities.

Sport organizations primarily experience a crowd-in effect due to the willingness of private donors to contribute. Moreover, this is influenced by Law No. 440/2015, which governs sport organisations and their funding, allowing them easier access to government support. This results in 38% (712.1 mil EUR) of total government funding for NGOs being allocated to sport organisations. Differences are evident in the average amount of government support: sport NGOs receive 12,174.99 EUR compared to interest NGOs (3,014.71 EUR), membership (3,668.04 EUR), social (15,796.43 EUR), professionals' (8,938.31 EUR), education-related (7,121.30EUR), health (156,498EUR), art (4,524.43 EUR) and others' (3,031.40 EUR). Although municipalities are expected to support sport activities and provide sport facilities (Žárska et al, 2010), direct sport services are delivered by NGOs. Since most municipalities have limited budgets, and the government do not provide this type of public service directly,

NGOs address this government failure (Weisbrod, 1988). Furthermore, sport NGOs fulfil the condition about higher subsidies in the field of recreation and sport if country GDP increases over time (Hindriks and Myles, 2006). Sport NGOs view government support as complementary to private donations, enabling them to diversify their funding sourcing and ensure long-term operations.

Social care organizations exhibit a crowd-in effect of regional support on private donations, with most NGO observations below falling below a threshold of 231.117 EUR. This crowd-in effect result is consistent with findings from US social care organisations (De Wit and Bekkers, 2019), but contradicts Grasse et al (2022). In Slovakia, the average regional support is 1,063.20 EUR, which is lower than the average government support (15,796.43 EUR). These results are driven by larger share of government support (189.1 mil EUR) compared to regional support (12.726 mil EUR), local support (1.946 mil EUR), total EU support (64.47 mil EUR) or private donations (146.70 mil EUR). Social care organisations primarily encompass services for elderly people, both physically and mentally disabled people, and youth organizations. The size of private donations received solely through tax assignation reflects the need for these services, as donors perceive social care services as diminished by subsidies. Moreover, NGOs' easier access to private donations is linked to demographic shifts in countries where elderly and disabled people are increasingly placed in institutions rather than care for by their own family (Perlitz, et al. 2010). Thus, NGO can perceive private donations as a complementary to all types of government subsidies.

In the case of education-oriented NGOs, they exhibit crowd-in results at the regional support level, which is consistent with Grasse et al. (2022). However, most education-aimed NGOs demonstrate a crowd-out effect at the level of total EU support. These results are attributed to two primary reasons – regional governments provide support for secondary education, and EU support is typically allocated to organisations engaged in diverse education activities, such as a research, exchanges of students, teachers, or other education-aimed topics. These NGOs focused more on total EU support (42.365 mil

EUR) compared to government support (29.802 mil EUR), regional support (1,138 mil EUR) or local support (950k EUR), as EU funding includes project-based grants and accessible sources for NGOs providing non-formal education programs. Nevertheless, donors' preferences in education reflects significance of NGOs services. Additionally, based on the provided results, regional support is considered as a complementary funding source to private donations in a NGO. Conversely, NGOs perceives EU funding sources as a substitute for private donations, a conclusion supported by the higher frequency of zero observations when calculating a threshold.

3.2. NGO older or younger than 2-years

Above-2-year-old NGOs analysis shows that total government support has a threshold at the level of 761.937 EUR ($p<0.01$) of private donations function that has a U-shape curve ($\beta 2 >0$). Our dataset of NGOs older than 2-years contains 9.384% of observations above a threshold (crowd-in) and 90.616% of observations below a threshold (crowd-out).

	Threshold	
	b	se
Total government support	761.937***	204.315
Observations	199203	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 74. Threshold of private donations function at the level of total government support in NGOs' older than 2years
Source: own proceeding

Above-2-year-old NGOs analysis shows that local support has a threshold at the level of 179.256 EUR ($p<0.01$) of private donations function that has a U-shape curve ($\beta 2 >0$). Our dataset of NGOs older than 2-years contains 1.588% of observations above a threshold (crowd-in) and 98.412% of observations below a threshold (crowd-out). Regional support has a positive relationship causing crowd-in effect. In the case of government support, its threshold is at the level of 148.365 EUR ($p<0.01$) in older NGOs. Private donations function has a U-shape ($\beta 2 >0$) at the government support. Analysed dataset of NGO above 2-year-age includes 7.347% of observations above a

threshold of 148.365 EUR and 92.653% of observations are below this threshold. The total EU support has a negative relationship with private donations causing crowd-out effect.

	Threshold	
	b	se
Local support	179.256***	65.464
Government support	148.365***	28.873
Observations	199203	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 8. Threshold of private donations function at the level of local and government support in NGOs' older than 2years
Source: own proceeding

Analysis shows most NGOs older than 2 years rather rely on private donations (crowd-out effect), because government subsidies are considered as a substitute. Only 9.384% of NGOs older than 2 years exceeded the threshold of private donations' function at the level of total government support (761.94 EUR). This result does not align with Heutel's (2014) statement that younger organizations depend more on private donations. The discrepancy arises from the higher proportion of observations among organizations with zero government subsidies; consequently, they must rely on alternative sources, as government centralize NGOs' funding at higher government levels (Lynn, 2008; McMullin, 2023). Focusing on distinctions in government subsidy levels, the results also reveal that most NGOs' observations indicate a crowd-out effect for local support (98.412%) and government support (92.653%). In contrast, older NGOs tend to experience a crowd-in effect of regional support. These outcomes are influenced by the services older NGOs provided, which align with the competencies of specific government. Regional government oversee secondary education, health and social care services, which reflect the crowd-in results in the previous analysis. This supports the statement that Central European countries are highly focused on social care services (Moulaert and Ailence, 2005). Additionally, older NGOs can count on a regional support as a complementary funding source, rather than substitute. Older organisations have longer history; therefore,

they are previously either confirmed by previously received donations and subsidies as secured to obtain higher portion of subsidies (Borgonovi, 2006; Jegers, 2023). This is further confirmed by subsidy amounts: older NGOs receive higher average upport compared to younger NGOs – local support (45.31 EUR for younger NGOs vs 148.58 EUR older), regional support (198.33 EUR of younger org vs 372.44 EUR of older NGO), government support (2,474.62 EUR of younger NGO vs 8,745.96 EUR of older), and total EU support (1,140.61 EUR for younger NGO vs 1,795.97 EUR for older). While NGO age is as a factor of crowd-out effect, Slovak NGOs results differ from previous studies.

3.3. Development level of a region

NGOs in Bratislava region have a threshold of private donations function at the level of 213.877 EUR. Private donations function has a U-shape curve ($\beta 2 > 0$) at the total government level. Our dataset of NGOs in Bratislava contains 1.588% of observations above a threshold (crowd-in) and 98.412% of observations below a threshold (crowd-out). However, a threshold result does not show any significant, because 51,960 of observations equal zero.

	Threshold	
	b	se
Total government support	213.877	153.457
Observations	59382	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 9. Threshold of private donations function at the level of total government support in NGOs belonging to Bratislava region
Source: own proceeding

NGOs in lagged regions have a threshold of private donations function at the level of 1,045.104EUR ($p<0.05$). Average value of total government support (6,825.954 EUR) is in the increasing part of private donations function ($\beta 2 > 0$), therefore this level of support reflects crowd-in effect on private donations. Our dataset of NGOs in lagged contains 7.678% of observations above a threshold (crowd-in) and 92.322% of observations below a threshold (crowd-out).

	Threshold	
	b	se

Total government support	1045.104**	424.753
Observations	171807	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 10. Threshold of private donations function at the level of total government support in NGOs belonging to lagged regions
Source: own proceeding

Due to the EU rule for funding allocation, which prioritize subsidizing entities in lagged regions with GDP below the EU average (less than 75% of GDP), the development level of a region can be examined. Moreover, a broader overview of NGO subsectors analysed within a single country could reveal a bigger picture of NGO funding preferences related to government subsidies and private donations. Furthermore, prior descriptive analysis of NGO funding in Slovakia shows a high concentration of all government levels in Bratislava region districts (48% of government support placed in Bratislava III, Bratislava II and Bratislava I). Previous studies from European countries demonstrate a crowd-out effect; therefore, this necessitates comparing the crowd-out effect in Bratislava region, considered as EU average region in per-capita GDP, with lagged regions in Slovakia. Crowd-out analysis examining total government support found that the majority of NGO observations in the Bratislava region (98.41%) and in lagged regions (92.32%) reflect the crowd-out effect, confirming that NGOs use a government support as a substitute for private donations in both regions without differences related to the development level of a region. The result of Bratislava region also confirms previous studies related to more developed European countries facing the crowd-out effect (Spain – Marcuello and Salas, 2000; UKI – Steinberg, 1985; Posnett and Sandler, 1989; Khanna et al., 1995). These results are caused by various factors – the Bratislava region, including the capital city, has a higher demand for public service compared to lagged regions, due to consequences related to demographic transition (Pestoff, 2010). Therefore, NGOs play a role in the provision of services and receive a higher proportion of funding among NGOs. There are significant differences in average 'total' government support between Bratislava region (19,469 EUR) and

lagged regions (6,825.954 EUR); therefore, donors in lagged regions are willing to contribute to NGOs despite a lower GDP and their lower disposable income, which is contradictory to Brooks' (2006) statement related to more developed regions and the theory explaining a positive relationship between disposable income and private donations (Bekkers and Wiepking, 2011). These results explain why NGOs in lagged regions can rely also on private donations as substitutes for government subsidies. Focusing on the differentiation of government support level, the results shows that most of NGO observations in lagged regions indicate a crowd-out effect of local support (98.563%) and government support (94.095%), confirming the substitution role of government subsidies for NGOs. The average government support is only 4,715.71 EUR compared to NGO in Bratislava region (17,064.83 EUR); therefore, NGOs in lagged regions rely more on private donations. Due to the small amount of government support, they must focus on fundraising campaigns (Sargeant, 2009). Moreover, NGOs in lagged regions receiving total EU support are more likely to face a crowd-out effect on private donations, which is caused by various factors –such as information about EU support demotivating donors from contributions and/or NGO managers becoming more dependent on EU support instead of initiating fundraising campaigns (Borgonovi, 2006).

Comparation of this complex study on the crowd-out effect in NGOs in Slovakia is complicated by previous studies for various reason. Firstly, most of the European studies were conducted using lab experiments (Blanco et al., 2012; Sutter and Weck-Hannemann, 2004; Galbiati and Vertova, 2008, 2014), therefore, the donor perspective does not align with the NGO perspective, and there are significant differences in crowd-out results between behavioural experiment and analysis at the organisational level (De Wit and Bekkers, 2019). This statement applies to non-European countries as well. Other analyses in Spain (Marcuello and Salas, 2000), using an organisation approach included only 50 NGOs related to development aid. More comparable are just studies in the Czech Republic (Hladká et al., 2017), which analysed 483 NGOs, and in the UK (Steinberg, 1985; Posnett and

Sandler, 1989; Khanna et al, 1995), which included only about 300 charities or 150 most prominent organisations in various subsectors (education, health, social care and housing). However, these studies show a crowd-out effect mainly in the social care organisations, which is contradictory to our study on NGO subsectors. Due to this reason, the study by Grasse et al. (2022) was used as a proper example of NGO sub-sectoral analysis, allowing comparison of our results in the education subsector (consistent) and in social care NGOs (inconsistent). However, social care NGOs and their complementary attitude towards government subsidies have been confirmed in previous studies (Weisblatt, 1992; De Wit and Bekkers, 2019). Other subsectors cannot be compared due to inconsistencies in other studies regarding NGO sub-sector classification (Jegers, 2023) or their specific focus on particular types of organizations. The last comparability challenge is related to the usage of the Tobit model due to incomplete data on private donations and the interpretation of results based on margins and thresholds of private donations' function. This approach was used only by Borgonovi (2006) when analysing non-profit theatres with crowd-in results, however, as theatres in this study are included in art NGOs without significant results, there is no comparability in this case. The complexity of this dissertation thesis contributes to the literature for various reasons: using NGO sub-sectoral classification, covering entire NGO sub-sector that received any type of government support and private donations (a recommended approach by Brooks (2003), and examining of NGO age as a crowd-out effect factor, which contradicts Heutel (2014) statement of younger NGOs dependency on private donations. Moreover, it incorporates the development level of the region as a factor of crowd-out effect, which was confirmed in the case of Slovakia, where observations mainly show crowd-out effect, as NGOs still prefer to rely on private donations.

Focusing on theoretical implications, this dissertation thesis has analysed the crowd-out effect of government support on private donations, which includes a comparation of various theories. NGOs with lower levels of subsidies are more likely to face a crowd-in effect,

conversely, if they are highly government subsidized, the crowd-out effect occurs depending on NGO preferences (Borgonovi, 2006; Harrison et al., 2014). This study revealed that the average level of government subsidy in Slovakia is relatively low compared to Western countries studies, where nonprofits are higher subsidized. If a Slovak NGO does not receive government support, its reliance on private donations increases, as confirmed by most of NGOs' observations equal zero, indicating a crowd-out effect. The average amount of government support is usually above the threshold, indicating a crowd-in effect which aligns with previous theories (Borgonovi, 2006; Harrison et al., 2014). The crowd-in effect occurring in sport and social care NGOs, which are highly subsidized by the government, oppose these studies. The next important implication is related to the government level of subsidies postulated by Grasse et al (2022), claiming that the highest providers of government support are municipalities, as closest to donors. However, the results of the crowd-out analysis show different results due to multiple reasons. The highest portion of government subsidies is provided by the central government or from EU sources, due to a centralized approach (Lynn, 2008; McMullin, 2023). Slovakia has 40% of municipalities with a population fewer than 500 inhabitants (Strecansky, 2017); therefore, their tight budgets cannot afford significant subsidies to local NGOs while needing to support nonprofit organisations in their ownership. Due to the same reason, not all NGOs can be funded by other levels of government. They can become supplementary co-producers if appropriate based on the needs of government. The last economics implication relates to the quadratic form of private donations function and the inverted U-shaped curve (Brooks, 2000). This study confirms that most NGO sub-sectors reflect a U-shaped curve of private donations contradicting Brooks' (2000) study, with the exception of sport and social care NGOs. These results are caused by numerous NGO observations across various levels of government support at zero, with same results in study by Borgonovi (2006), claiming that irregular government subsidies change a curve shape and diminish a threshold of private donations function, which is confirmed by this

dissertation thesis. Additionally, the analyses in this study reveal that the regional and EU levels of government support may have a linear relationship with private donations, opposing Brooks (2000).
The limitations of this study are connected to the dependent variable. As private donations consist of various portions – fundraised money, tax assignations, etc. - and this study includes only a portion of tax assignation, this dependent variable represents an omitted-problem issue, which has been addressed using a Tobit model with left-corner solution. Furthermore, the many zero government support observations at all levels influenced the significance of the threshold results; however, since the dataset reflects a reality, a more appropriate Lasso model could handle the scarcity issues in the dataset (Wooldridge, 2010). Additionally, the full scope of private donations cannot be obtained even from the Accounting register, due to missing public annual reports from NGOs (Murray Svidroňová et al, 2023). Due to register limitations, it was not possible to examine also other factors mentioned in previous studies such as organisational size, because Slovak NGOs do not report fully employees' number as many freelancers working there. Similarly, analysis of private and corporate donors was not possible to proceed either, due to aggregated data in tax assignations' report and the issue of missing accounting reports. A partial limitation is the self-identification of NGO in the register, which may vary in some NGO cases.

6. Conclusion

The main aim of the dissertation was to examine the relationship between government support and private donations among NGOs in the context of the Slovakia at the sub-sectoral level. To achieve this goal, the following research questions were formulated: 1. Does government support crowd out private donations across NGO sub-sectors? and 2. Does the crowd-out effect vary across NGO sub-sectors depending on government level providing subsidies? These research questions were analysed using a Tobit model with left-cornered solution at the organizational level, by examining total government support as well as various levels of government support.

Results of this dissertation thesis shows that government support crowd out private donations in most NGOs among sub-sectors. Moreover, the crowd-out effect varies across sub-sectors depending on government level providing subsidies. Analysis using total government support revealed that 9.647% of NGOs' observations are above the threshold limit (crowd-in effect) and 90.353% of observations is below the threshold (crowd-out effect). The threshold of private donations' function at the level of total government support is 284.188 EUR, meaning the marginal rate of substitutions between private donations and total government support is zero. Among all NGOs, thresholds of private donations' function are lower at the local support (181.967 EUR) and government support (130.807 EUR) compared to Borgonovi (2006) result of a public support threshold at 10,550 USD. This difference is attributed to higher average government support in the U.S. study analysing theatres. Most observations in our analysis belongs to NGOs facing a crowd-out effect at both the local and government support levels. Since most of NGOs' observations in both models show a crowd-out effect, this implies, that NGOs perceive government subsidies as substitutes and tend to rely more heavily on private donations.

Focus on NGO subsectors shows that, in the case of interest NGOs, the thresholds of private donations' function are low at the local (334.390 EUR) and government (76.252 EUR) support due to a higher proportion of zero observations related to subsidies. However, governments allocate 379.7 mil EUR (government support) and 206.1 mil EUR (total EU support) to the largest sub-sector (interest NGOs) in Slovakia. Sport organizations primarily experience a crowd-in effect due to the willingness of private donors to contribute. Moreover, this is influenced by Law No. 440/2015, which governs sport organisations and their funding, allowing them easier access to government support. This results in 38% (712.1 mil EUR) of total government funding for NGOs being allocated to sport organisations. Social care organizations exhibit a crowd-in effect of regional support on private donations. Regional support is considered in education-aimed NGOs as a complementary funding source to private donations.

Education-oriented NGOs perceives EU funding sources as a substitute for private donations, a conclusion supported by the higher frequency of zero observations when calculating a threshold.

This dissertation thesis disrupts previous findings related to the inverted U-shape curve of private donations (Brooks, 2000), the tendency of local governments to subsidize organizations more than central governments (Grasse et al., 2022) and the likelihood that lower levels of subsidies are more likely to face a crowd-in effect (Borgonovi, 2006; Harrison et al., 2014). These discrepancies are influenced by lower averages of government subsidies compared to Western European or American studies, the occurrence of irregular NGO subsidizing and a higher proportion of less populated municipalities with limited budgets.

Despite perception of NGOs on government support as substitute of private donations, most NGOs eligible for normative funding related to education or social care can use advantage of their longer history, suitable location and proof of stability related to private donations and other funding sources can enhance chances in receiving subsidies. Moreover, this diversification of funding source ensures that their operation smooth from the long-term perspective.

Recommendations for a future research open various opportunities to be explored. The first is related to qualitative research to examine crowd-out effect factors within NGOs to support results of this thesis. Further analyses of crowd-out effect can be focused more on a complex approach examining entire NGO subsector at the various levels of government support. Moreover, significant research can be done in other European countries to have options for results comparation of entire NGO sector across countries.

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[JOHANESOVÁ, Lucia (100%)]

Same Revolutions, Different Development: Socio-Economic Indicators of Non-Governmental Organization's Localization in V4 Countries in Europe / Lucia Johanesová.
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Impact of Erasmus+ Youth Exchanges on the Civic Participation in the European Countries / Lucia Johanesová. - VEGA 1/0249/22. In: Ekonomické rozhľady : vedecký časopis Ekonomickej univerzity v Bratislave = Economic Review: Scientific Journal of the University of Economics Bratislava. - Bratislava : Ekonomická univerzita v Bratislave, 2024. - ISSN 0323-262X. - Roč. 53, č. 1 (2024), s. 79-92. [JOHANESOVÁ, Lucia (100%)]

Príručka spolupráce: príručka spolupráce verejnej správy a mimovládnych neziskových organizácií pri poskytovaní služieb / Mária Murray Svidroňová, Katarína Vitálišová, Veronika Zahorjan, Lucia Švecová, Lucia Johanesová ; recenzentky: Eva Balážová, Mária Milková, Michaela Ďurdíková. - 1. vydanie. - Bratislava : Úrad splnomocnenca vlády SR pre rozvoj občianskej spoločnosti, 2023. - 90 s. [4,5 AH] [4,5 AH]. - ISBN 978-80-89051-90-8
[MURRAY SVIDROŇOVÁ, Mária (20% 0,9) - VITÁLIŠOVÁ, Katarína (20% 0,9) - ZAHORJAN, Veronika (20% 0,9) - ŠVECOVÁ, Lucia (20% 0,9) - JOHANESOVÁ, Lucia (20% 0,9) - BALÁŽOVÁ, Eva (rec.) - MILKOVÁ, Mária (rec.) - ĎURDÍKOVÁ, Michaela (rec.)]

Does government support increase motivation of citizens to contribute to NGOs' services: Yes or No?/ Lucia Johanesová. – ESG grant for young researchers and Phd students nm. I-24-104-00. In Ekonomika a spoločnosť. Univerzita Mateja Bela v Banskej Bystrici, 2025.
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9. Summary

One of the important roles of NGOs is a provision of public services in cooperation with government (Frumkin, 2002), NGOs provided public services is operation with lower transactional costs (Weisbrod, 1988). These organisations have various funding options related to government subsidies or private donations. However, NGOs funding strategy has to be fulfilled also based on awareness donors' structure, either individuals or firms, in order to correctly and strategically focus

fundraising campaigns (Sargeant, 2009). Interaction between private donations and government subsidies is described through a crowd-out effect analysis explaining the marginal rate of substitution between government support and private donations describing if a NGO perceive government support as a substitute (crowd-out) or a complement source of funding (crowd-in). The main aim of the dissertation is to examine the relationship between government support and private donations in the NGOs in the conditions of the Slovak at the sub-sectoral level. Dataset includes 25,754 NGOs inserted into Tobit model with left-corner solution. The analysis is performed at the organizational level in the period 2014-2022 incorporating two approaches using total government support and various levels of government support to distinguish available funding sources in total amount or funding opportunities based on the service NGO provided. Results show that NGO subsector is a factor of crowd-out effect, which varies according to type of service. Most of NGOs face crowd-out effect of government subsidies on private donations with exception of sport and social care organisations. NGOs above 2 years reflect mainly a crowd-out effect of total government support on private donations, because government subsidies are considered as a substitute for private donations. Examination of a development level of region, to which NGO belongs, as a factor of crowd-out effect shows that NGOs settled in lagged regions also faces crowd-out effect of government support on private donations despite EU practises to support regions with GDP below 75% of EU average. This dissertation thesis provides a broader analysis of NGO subsectors if government subsidies are considered as a substitute or a complementary for private donations. It also examines NGO age impact on crowd-out effect and brings new approach related to analysis of a development level of region as a factor of crowd-out effect. Policy recommendations contain advices in the long-term co-production of services in sub-sectors with crowd-in effect, and conditional subsidizing of crowd-out effect subsectors requiring combination of government subsidies and private donations.

10. Extended abstract in the Slovak language

Mimovládne neziskové organizácie (ďalej ´MNO´) zohrávajú dôležitú úlohu v spoločnosti, nakoľko dopĺňajú svojimi službami štát alebo iné organizácie, ktoré nie sú schopné ich poskytnúť a odpovedať tak na potreby a záujmy rôznych sociálnych skupín. Ich fungovanie závisí najmä od externej podpory ľudí, súkromných aj verejných inštitúcii na lokálnej, regionálnej, národnej a nadnárodnej úrovni. V literatúre sa vyskytujú rôzne pojmy, pod ktorými sa občianska spoločnosť predstavuje – občianska spoločnosť, tretí sektor, neziskový sektor, charity, dobrovoľnícky sektor, sociálna ekonomika, sociálne podniky, alebo asociácie, líšiace sa od súdnej právomoci danej krajiny a právnych nastavení (McMullin, 2023). V tejto dizertačnej práci sa však používa pojem mimovládne neziskové organizácie (ďalej "MNO"), ktoré nezahŕňajú verejné neziskové organizácie patriace štátu. MNO majú dve hlavné úlohy v spoločnosti – vypĺňať medzeru medzí štátom a súkromným trhom službami, ktoré tieto subjekty nezastrešujú; a podporovať rozvoj sociálneho kapitálu prostredníctvom občianskej participácie (Weisbrod, 1988; Frumkin, 2002). Verejné inštitúcie poskytujú služby na základe preferencií a očakávaní mediánu voliča (Finn, 2010), preto nemusia spĺňať štandardy obyvateľov, ktorí hľadajú vyššiu kvalitu. Cieľom MNO je zameranie s ana maximalizáciu sociálnej hodnoty (Anheier, 2005). Kľúčovou výhodou MNO v poskytovaní verejných služieb sú nižšie transakčné náklady (Weisbrod, 1988), ktoré zabezpečujú vďaka kombinácii platenej pracovnej sile, dobrovoľníkov, hmotných a nehmotných darov, aj prostredníctvom spolupodieľania sa poskytovaní verejných služieb spolu s inými MNO (Pestoff, 2006).

Nakoľko cenová politika MNO závisí od výšky získanej podpory, ktorá znižuje hodnotu ceny služby poskytovanej MNO (Jegers, 2023), tým pádom je rovnaký princíp platný aj pre súkromné príspevky donorov. Oprávnenosť na získanie štátnych dotácii a grantov závisí od viacerých faktorov, ako je legislatíva, smernice a administratívne postupy, ktorým musia MNO čeliť, a zároveň nastavenie misie MNO s cieľmi štátu (Jegers, 2023).

Interakciu medzi vládnymi dotáciami a súkromnými darmi v MNO možno skúmať prostredníctvom analýzy crowd-out efektu, ktorá vysvetľuje hraničnú mieru substitúcie medzi vládnou podporou a súkromnými darmi a skúma, či MNO vníma vládnu podporu ako substitút (crowd-out efekt) alebo komplementárny zdroj financovania (crowd-in efekt). Pri zameraní sa na úmysly darcov prispievať do MNO na základe ich informácii o vládnych dotáciách existuje paralelne ďalšia definícia: crowd-out efekt opisuje situáciu, keď dotácie vlády pre MNO korelujú s poklesom súkromných darov; zatiaľ čo crowd-in efekt odráža pozitívny vplyv vládnej podpory vedúcej k rastu súkromných darov (Andreoni et al, 2014; Jegers, 2023). Crowd-out efektu analyzovaný v rôznych krajinách, ako Kanada (Payne, 1998; Callen 1994; Chan et al. 2002), Austrália (Reeson a Tisdell, 2008; Lilley a Slonim, 2014), Taiwan (Hsu, 2008), Španielsko (Marcuello a Salas, 2000; Blanco et al, 2012), Nemecko (Paqué 1986; Bönke et al, 2013), Rakúsko (Sutter a Weck-Hannemann, 2004), Taliansko (Galbiati a Vertova, 2008 a 2014), Spojené kráľovstvo (Steinberg, 1985; Posnett a Sandler, 1989; Khanna et al, 1995), Izrael (Weinblatt, 1992) aj Česko (Hladka et al., 2017).

Hlavným cieľom dizertačnej práce je analyzovať vzťah medzi vládnou podporou a príspevkami od donorov v MNO na Slovensku na úrovni podsektorov MNO. Na dosiahnutie hlavného cieľa boli sformulované nasledujúce výskumné otázky: Vedie vládna podpora k vytlačeniu (crowd-out efektu) príspevkov od donorov naprieč podsektormi MNO? Líši sa miera crowd-out efektu medzi jednotlivými MNO podsektormi v závislosti od vládnej úrovne poskytovanej dotácie? Analýza sa uskutočnila na úrovni organizácie (MNO) za obdobie 2014–2022 s využitím dát od 25 748 MNO. Závislou premennou boli súkromné dary, reprezentované sumami z daňového priradenia (Finančná správa SR). Nezávislými premennými boli podpora miestnej, regionálnej a centrálnej vlády (Centrálny register zmluv SR) a celková podpora EÚ (systém ITMS+, platforma Erasmus+). Kontrolné premenné zahŕňali vek MNO, počet MNO v okrese, disponibilný príjem, mieru nezamestnanosti, podiel obyvateľov iných národností, počet

kriminálnych činov, HDP v regióne a účasť na voľbách (ŠÚ SR, Register MNO). Na analýzu bol použitý Tobit model s ľavostranným ohraničením (riešenie pre neúplne pozorované dáta) v nasledujúcej špecifikácii, ktorá zohľadňuje nelineárny vzťah podľa Brooksa (2000): $PD = \beta 0 + \beta 1.G + \beta 2.G^2 + Z + \varepsilon$, kde *PD* predstavuje súkromné dary, *G* je vládna podpora, *Z* sú kontrolné premenné a ε je chybový člen.

Analýza celkovej vládnej podpory odhalila, že 90.353% pozorovaní v MNO sa nachádza pod hraničným bodom funkcie súkromných darov (284.188 EUR), čo indikuje prevládajúci crowd-out efekt. To znamená, že väčšina MNO vnímala vládnu podporu ako substitút súkromných darov a spoliehala sa viac na ne. Podobný efekt bol zistený aj pri analýze jednotlivých úrovní vládnej podpory, s nižšími hraničnými bodmi pre miestnu podporu (181.967 EUR) a vládnu podporu (130.807 EUR) v porovnaní so štúdiami zo zahraničia (napr. Borgonovi, 2006 - 10 550 USD), čo sa pripisuje nižšej priemernej výške podpory na Slovensku. Naša analýza poskytuje prehľad služieb poskytovaných športovými MNO a organizáciami sociálnych služieb, ktoré vnímajú vládnu podporu ako doplnok k súkromným príspevkom od donorov, preto je možné ľahšie zabezpečiť dlhodobú udržateľnosť týchto služieb. Na druhej strane, iné MNO sektory naznačujú efekt vytláčania, pretože vládnu podporu vnímajú ako substitút k príspevkom od donorov. Ak je to spojené s deficitom verejných služieb, tvorcovania politík by mali zvážiť podmienené financovanie, ktoré si vyžaduje doplnkové zdroje od vládky, aj od súkromných darcov, aby tieto organizácie mali ľahší prístup k verejným financiám. Toto riešenie sa týka predovšetkým vzdelávania, zdravotníctva a záujmových MNO, ktoré vykazujú crowd-out efekt. Analýza crowd-out efektu ukázala, že aj staršie MNO sa spoliehajú viac na príspevky od donorov, lebo majú stabilnú štruktúru darcov, čo im poskytuje diverzifikáciu zdrojov financovania, vďaka čomu sú tieto organizácie stabilné a vhodné na koprodukciu verejných služieb. Preskúmanie úrovne rozvoja regiónov odhalilo, že MNO v menej vyspelých regiónoch

majú zabezpečený príjem súkromných príspevkov, čo im zabezpečuje istotu vo financovaní, lebo ľudia aj napriek nižšiemu HDP a disponibilnému príjmu sú ochotní prispievať do MNO. Tieto organizácie rovnako vnímajú vládnu podporu ako subsitút k súkromným príspevkom, preto sa tým znižuje ich záujem spoliehať sa výlučne iba na vládne dotácie. Odporúčania k tvorbe verejných politík zahŕňajú podporu dlhodobej spolupráce v poskytovaní služieb v MNO, ktoré považujú verejné zdroje za komplementárne a podmienečnú finančnú podporu MNO, ktorá by vyžadovala kombinované verejné aj súkromné zdroje.