

# LONG-TERM DETERMINANTS OF THE NONPROFIT SECTOR SERVING HOUSEHOLDS IN THE CZECH REPUBLIC

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## Abstract

Despite the nonprofit sector serving households generates significant part of the national income, it provides important and irreplaceable services for needy people. The aim of the paper is to identify the long-term socioeconomic determinants of the nonprofit sector serving households in the Czech Republic and confirm the supply-side theory and/or demand-side theory of the nonprofit sustainability. The regression analysis of socioeconomic indicators from the Czech Republic in the long term (2000-2014) revealed that the demand-side theory and supply-side theory of nonprofit sustainability are mutually compatible and should not be confronted. The size of the Czech nonprofit sector is externally driven by the condition of economy (supply-side) as well as by the needs of socially vulnerable people (demand-side). Another important finding is that there is a competition between nonprofit and governmental public sector in health care but not in social care where the government encourages the involvement of non-governmental organisations in the provision of social services.

**Key words:** nonprofit sector serving households, empirical research, socioeconomic indicators, Czech Republic

**JEL Code:** L31, H50

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## Introduction

The nonprofit sector is an integral part of all developed countries. It is heterogeneous, ranging from foundations to societies and clubs. The nonprofit sector covers both public and private organizations. The paper focuses on the nonprofit sector serving households which plays an important social role. “The nonprofit institutions serving households sector (S.15) consists of nonprofit institutions which are separate legal entities, which serve households and which are private non-market producers. Their principal resources are voluntary contributions in cash or in kind from households in their capacity as consumers, from payments made by general government and from property income. The nonprofit institutions serving households sector

includes trade unions, professional or learned societies, consumers' associations, political parties, churches or religious societies (including those financed but not controlled by governments), and social, cultural, recreational and sports clubs; and charities, relief and aid organizations financed by voluntary transfers in cash or in kind from other institutional units. Sector S.15 includes charities, relief or aid agencies serving non-resident units and excludes entities where membership gives a right to a predetermined set of goods and services.” (European Commission, 2013).

## **1 Theoretical framework**

The academic discussion about determinants of the size of the nonprofit sector has been focused on demand-side and supply-side theory of nonprofit sustainability. The demand-side considers the needs coming from social problems such as ageing, migration or public health. The theory of demand for services provided by the nonprofit sector is associated with the so-called theory of market failure theory and government failure theory. The nonprofit sector serving households caters for the needs of households that are not being satisfied by the for-profit companies or state (or public) entities. However, public deems some services provided by nonprofit institutions to be unique and irreplaceable by any governmental activities. The government failure theory has been detected by many academicians (Matsunaga, Yamauchi, & Okuyama, 2010; Salamon & Toepler, 2015). Apart from the government failure theory, there is also a theory of interdependence – the nonprofit services are complement to the governmental activities or public sector activities (Gazley, 2010; Lecy & van Slyke, 2013).

The supply-side theory highlights the revenue side of the nonprofit sector. The supply of nonprofit organizations is determined by the volume of funding sources such as availability of government grant programs and public funds for social care organizations or hospitals (Luksetich, 2008) and corporate philanthropy (Brejning, 2012). Funding resources positively depends on the relative welfare of the country as expressed by Gross Domestic Product per capita (Pevcin, 2012).

Recent empirical studies of rural nonprofit sector in the Czech Republic show that it is sometimes not possible to clearly classify of the demand-side and supply-side sustainability determinants. Rather, there is a controversial entanglement of demand-side and supply-side identities. Demand and supply factors operate simultaneously and that it is difficult to separate them (Valentinov & Vacekova, 2015; van Puyvelde & Brown, 2016).

The aim of the article is to identify the long-term socioeconomic determinants of the nonprofit sector serving households in the Czech Republic. The quantitative analysis should reveal whether there is any competition between nonprofit services and governmental/public sector activities. Alternatively, the article identifies key drivers of the size of the nonprofit sector on the demand side and the supply side as they were described above.

## 2 Data

The determinants of the size of the nonprofit sector serving households are tested through the dependency between Final consumption expenditure of nonprofit institutions serving households per capita (NGO) and following explanatory socioeconomic indicators which were selected to represent both supply-side and demand-side theory of nonprofit sustainability.

A) The indicators of the supply-side theory of nonprofit sustainability:

- The Gross domestic product per capita (*GDP*) reflects the economic level of the country. It is expressed in US dollars per capita in purchasing power parity, and at constant prices of 2010.
- The share of population (%) with tertiary education relative to total population in the Czech Republic (*EDUC*). It represents the level of education in the country which could be a proxy for altruistic behavior of the society.

B) The indicators of the demand-side theory of nonprofit sustainability:

- The old-age dependency ratio (%), expressed as a proportion of people aged 65+ to the population aged 15-64 (*AGE*). It measures the age structure of the population which is expected to determine the country's social system.
- The government expenditures on health care per capita, expressed in US dollars per capita in purchasing power parity, and at constant prices of 2010 (*HEALTH*). If the government failure theory is true, there could be negative relationship between the size of the nonprofit sector serving households and government expenditures on health.
- Life expectancy at birth (*LIFEEXP*) refers to the average number of years a newborn is expected to live if mortality patterns at the time of its birth remain constant in the future. The hypothesis is that increasing life expectancy goes hand in hand with improving living and economic conditions of the elderly which is supported by the development of the nonprofit sector.

- The number of refugees per hundred thousand inhabitants (*REFUG*). The size of the nonprofit sector could be positively driven by the number of refugees in the country which need social support provided by the NGOs.
- The annual unemployment rate (%) of the population between 15 and 64 years old (*UNEMPL*). The hypothesis is that the higher the unemployment, the greater the demand for the social services of the nonprofit sector.

The dataset contains annual time series data in the period 2000-2014. The data comes from the official databases of the OECD, the World Health Organization and the World Bank.

### 3 Methods

The analysis is based on strongly multiple regression analysis of time series ( $T = 15$ ). The analysis was processed through the Autoregressive Distributed Lag model (ADL) and Error Correction Model (ECM). The ECM can distinguish between short-term and long-term relationships. The model meets assumptions following from the unit root tests (tab. 1) The diagnostic control used test of autocorrelation (Breusch & Godfrey, 1986), normality test (Jarque & Bera, 1980) and heteroscedasticity test (Darnell, 1994) at the 5% significance level (table 3).

**Tab. 1: Unit root tests**

	$y_t$		$\Delta y_t$	
	t-Stat.	Prob.	t-Stat.	Prob.
NGO	0.9274	0.8936	-3.2543	0.0470
GDP	2.3058	0.9909	-1.8773	0.0439
AGE	4.7079	0.9998	-3.8254	0.0010
EDUC	8.6455	1.0000	-3.8743	0.0011
HEALTH	-2.1518	0.2297	-2.7066	0.0111
LIFEEXP	4.5525	0.9999	-5.5615	0.0008
REFUG	3.0992	0.9980	-3.8245	0.0010
UNEMPL	-2.9753	0.1745	-3.7531	0.0013

Source: authors' calculation

## 4 Results

Table 2 contains the results of the short-term ADL model for the Czech Republic.

**Tab. 2: Short-term ADL model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4564.632	448.622	-10.175	0.001
NGO(-1)	-0.784	0.185	-4.241	0.013
GDP(-1)	0.015	0.003	4.869	0.008
AGE	-69.294	14.254	-4.861	0.008
AGE(-1)	78.500	14.372	5.462	0.006
EDUC	-18.360	3.014	-6.092	0.004
HEALTH	-0.134	0.031	-4.304	0.013
LIFEEXP	60.064	6.160	9.750	0.001
REFUG	6.724	0.806	8.345	0.001
UNEMPL	11.287	1.941	5.815	0.004
R-squared	0.9973		Adj R-squared	0.9913

Source: authors' calculation

**Tab. 3: Tests of autocorrelation, heteroscedasticity and normality**

Breusch-Godfrey Serial Correlation LM Test	TR <sup>2</sup> = 12.35320	Prob. = 0.0749
Heteroskedasticity Test: ARCH	TR <sup>2</sup> = 0.315174	Prob. = 0.5745
Normality Jarque-Bera Test	JB = 0.088685	Prob. = 0.9566

Source: authors' calculation

In the short-term period, the size of the nonprofit sector serving households in the Czech Republic is directly proportional to the life expectancy at birth, number of refugees per hundred thousand inhabitants and unemployment rate in the same year  $t$ . The size of nonprofit sector serving households has been negatively influenced by the age structure, share of tertiary educated people and the government expenditures on health care per capita in the same year  $t$ . Moreover, there are delayed effects ( $t-1$ ) between the size of nonprofit sector serving households, GDP and age structure.

Diagnostic control in the table 3 indicates that the unsystematic component of the model is not autocorrelated, is homoscedastic and normally distributed. Transformation of the ADL model to the ECM model provided following estimation

$$\begin{aligned} \Delta \widehat{NGO}_t = & -2558.64 - 69.295\Delta AGE_t - 18.360\Delta EDUC_t - 0.134\Delta HEALTH_t + 60.064\Delta LIFEEXP_t + \\ & + 6.725\Delta REFUG_t + 11.288\Delta UNEMPL_t - 1.784 [NGO_{t-1} - 0.008GDP_{t-1} - \\ & - 5.160AGE_{t-1} + 10.292EDUC_{t-1} + 0.075HEALTH_{t-1} - 33.668LIFEEXP_{t-1} - \\ & - 3.769REFUG_{t-1} - 6.327UNEMPL_{t-1}]. \end{aligned} \quad (1)$$

Transformation of the model to provide long-term relationships has following final formula.

$$NGO_t = 0.008GDP_t + 5.160AGE_t - 10.292EDUC_t - 0.075HEALTH_t + 33.668LIFEEXP_t + 3.769REFUG_t + 6.327UNEMPL_t. \quad (2)$$

In the long-term period and under ceteris paribus assumption, the increase of GDP per capita by 1 USD increases the size of nonprofit sector serving households per capita by 0.008 USD. The increase of the old dependency ratio by 1 percentage point increases the size of the nonprofit sector serving households per capita by 5.16 USD. When the share of people with tertiary education increases by 1 percentage point, the size of the nonprofit sector serving households per capita drops by 10.29 USD. The increase of the government health care expenditures per capita by 1 USD decreases the size of the nonprofit sector serving households per capita by 0.075 USD. The life expectancy at birth goes in direct proportions with the size of the nonprofit sector serving households – one year more means higher NGO by 33.67 USD. When the number of refugees per hundred thousand of inhabitants increases by 1 person, the size of the nonprofit sector serving households per capita increases by 3.77 USD. Finally, higher unemployment rate by 1 percentage point increases the size of the nonprofit sector serving households per capita by 6.33 USD.

The model supports both the demand-side theory and supply-side theory of nonprofit sustainability and goes hand in hand with recent findings that demand and supply factors operate simultaneously and that it is difficult to separate them (Valentinov & Vacekova, 2015; van Puyvelde & Brown, 2016). We can generalize our results only for the Czech Republic because there are other socioeconomic conditions in other countries.

#### **4 Discussion**

In the Czech Republic, the model identified a positive relationship between the size of the nonprofit sector serving households per capita and GDP per capita. It supports the previous research by the other authors (Pevcin, 2012; Pryor, 2012) and the supply-side theory of nonprofit sustainability. The better economic conditions generate available financial sources for nonprofit sector from individual donors, public sector and corporate sphere.

In contradiction to authors' expectations, there is a negative long-term relationship between the size of the nonprofit sector and the share of people with tertiary education in the Czech Republic. The higher-educated people give careful consideration if there is a real need

for help or it should be covered by the public social system. But explanation would require more in-depth sociological survey.

The age structure of population and life expectation at birth are significant long-term determinant of the size of the nonprofit sector serving households in the Czech Republic. It corresponds to the authors' expectations. The positive relationship relates to the relatively significant role of nonprofit social care for the elderly in the Czech Republic. Services for the elderly are provided within the medical and social sectors. The Czech system of social care for the elderly is based on institutional care (Sowa, 2010) which is provided within the social services system (in pensioner homes, supported home care). The finding supports the fact that non-governmental and non-profit organisations are important providers<sup>1</sup> of social services in the Czech Republic, based on contracts with local governments and social service clients (Sowa, 2010).

The higher government health expenditures per capita negatively affect the size of the nonprofits serving households in the Czech Republic. There is an obvious competition between publicly supported social and health care system and nonprofit sector which provides similar services. When government health expenditures increase, the size of the nonprofit sector serving households drops. So, the model supports the government failure theory as it was introduced earlier.

The question of refugees has been recently more often discussed. In the Czech Republic, there is a positive relationship between relative number of refugees and the size of the nonprofit sector. It means that nonprofit organizations help governmental sector to cope with increasing number of refugees in need coming from war regions.

Unemployment rate is also the significant determinant of the nonprofit sector serving households in the Czech Republic. There is a public social system for support of unemployed people. The nonprofit sector offers alternative help in the form of social nonprofit organizations which focus on various socially vulnerable groups (e.g. associations for the disables, single mothers, minorities, gender issues). Moreover, there are social companies which offer job for needy people. All these nonprofit organizations contribute to mitigation negative consequences of unemployment.

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<sup>1</sup> They provide more than one third of social services in the Czech Republic. The first place take municipalities, the third place take regional authorities.

## Conclusion

The aim of the article was to identify the long-term socioeconomic determinants of the nonprofit sector serving households in the Czech Republic. Based on the regression of socioeconomic data from the period 2000-2014, the analysis revealed competition between nonprofit services and governmental/public sector activities because the higher government expenditures on health care make the nonprofit sector serving households smaller. So, there is a competition in health care which has been provided by hospital departments or aftercare, rehabilitation and long-term care departments.

Unlike the health care, there is a cooperation of nonprofit sector and governmental/public sector in the social care. The Czech social services system strongly encourages the involvement of non-governmental organisations in the provision of services. The results support the demand-side theory of the nonprofit sustainability as the Czech nonprofit sector serving households flexibly responds to population ageing accompanied by relatively high life expectancy.

The supply-side theory was supported because it identified a positive relationship between the size of the nonprofit sector serving households per capita and GDP per capita. This welfare theory confirmed the previous findings by other authors.

In the Czech conditions, authors revealed that the demand-side theory and supply-side theory of nonprofit sustainability goes hand in hand and are mutually compatible. The size of the Czech nonprofit sector is externally driven by the condition of economy on the one hand, and by the needs of socially vulnerable people (e.g. elderly people, long-term unemployed people or refugees) on the other hand. So, the policy makers should consider both sides.

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