

What determines the size of the nonprofit sector?

-A Cross-country Analysis of the Government Failure Theory and the Interdependence Theory-

Yoshiho Matsunaga

Osaka School of International Public Policy
Osaka University

Naoto Yamauchi

Osaka School of International Public Policy
Osaka University

Abstract

The goal of this paper is to empirically examine the robustness of the government failure theory and the interdependence theory. According to previous studies, the government failure theory or the interdependence theory is said to give a rational explanation for a unique feature of the nonprofit sector: the size of the nonprofit sector differs from one place to another. Salamon et al. (2000) examined both the theories using the CNP (the Johns Hopkins Comparative Nonprofit Sector Project) data set. As a result, they dismissed the government failure theory and supported the interdependence theory. However, through this paper, we aim to empirically prove that the interdependence theory was not robust and that the government failure theory should not be so easily dismissed, using the same data set.

Key words: Size of the nonprofit sector, Population heterogeneity, Government failure theory, Interdependence theory.

1. Introduction

As distinctive economic and social roles of various kinds of nonprofits become conspicuous in many countries, countywide, statewide, and worldwide data concerning the nonprofit sector have been gathered and examined to grasp a numerical figure of nonprofits. What these data revealed was quite noteworthy: the size of the nonprofit sector varies dramatically according to its locality. For this reason, many studies on the nonprofit sector were started to search for factors causing the regional variations in the size of the nonprofit sector.

Weisbrod (1987) presented a rational explanation for this unique feature of nonprofits by introducing the government failure theory. According to this theory, government provisions of quasi-public goods become relatively homogeneous because governments supply them in order to mainly satisfy the preferences of median voters. In this case, all but median voters are not satisfied by the government supply of quasi-public goods, and this dissatisfaction creates the demand for quasi-public goods supplied by nonprofits. Thus, the government failure theory implies that nonprofits are most active where the preferences of populations are most diverse or where populations are heterogeneous (Matsunaga and Yamauchi, 2002). In short, the core source of government failure is population heterogeneity, and it is the most influential factor determining the size of the nonprofit sector. Many researchers have examined whether population heterogeneity really has an explanatory power. However, a fair number of researchers claimed that it either had no explanatory power, or it had explanatory power but the correlation was negative. (Abzug &

Turnheim, 1998; Marcuello, 1998; Salamon et al., 2000; Gronbjerg & Paarlberg, 2001) These results belie what the government failure theory predicts. Thus, it is not a surprise if these empirical analyses of the government failure theory reinforced the researcher's suspicions on the lack of robustness of this theory.

Salamon et al. (2000) also harbor doubts about the robustness of this theory. Using a 22 cross-country data set, they find that the nonprofit sector grew in proportion to the size of governments rather than in proportion to the degree of observable population heterogeneity. Consequently, they conclude that the worldwide variations in the size of the nonprofit sector occurred because the size of governments differed in each country. As such, they introduce the interdependence theory that claims the government is a partner to nonprofits in the production of quasi-public goods. Though their sample size to examine government failure theory and interdependence theory was undoubtedly insufficient, their research was a milestone in the search for rational explanations for regional variations in the size of the nonprofit sector

The explanatory variables chosen in this paper mainly follow Salamon et al. (2000). The main research target in this paper is to examine whether the government failure theory or the interdependence theory can be empirically supported.

This paper is arranged as follows: in section 2 we review previous empirical works in this field of studies. Then, the empirical model of nonprofits used in this paper will be introduced, and the results

from estimations will be presented in section 3. Finally, concluding remarks will summarize our findings in this study.

2. A Brief Review of Previous Empirical Analyses

Several researchers have performed empirical analyses to search for statistically significant variables that explain why the nonprofit sector is large in some areas, but not in others. Table 1 summarizes estimation results from previous studies.

(Table 1)

As becomes clear from Table 1, there are several common explanatory variables to be chosen as factors influencing the size of the nonprofit sector. Especially, observable population heterogeneity and the scale of governments form the basis of the research target of almost all previous studies. However, their research targets are not to specifically examine the robustness of the government failure theory but to search for the factors affecting the size of the nonprofit sector. What Table 1 reveals is that there is no single argument in terms of what proxies should be treated as appropriate measures for observable population heterogeneity. The choice of proxies dramatically affects the statistical significance and the signs of the factor observable population heterogeneity. For example, Corbin (1999) and James (1997) chose religious diversity as a proxy for observable population heterogeneity and found that observable population heterogeneity had a positive effect on the size of

the nonprofit sector. Salamon et al. (2000) also chose religious diversity¹ as a proxy. However, they found that observable population heterogeneity had no explanatory power. Abzug and Turnheim (1998) chose race diversity as a proxy, but concluded that race diversity had no explanatory power.

With regards to the relationship between governments and nonprofits, for example, Salamon et al. (2000) used government expenditures for social services in relation to the GDP in order to see the relationship between the size of the nonprofit sector and that of governments, and reported a positive relationship between the two. Abzug and Turnheim (1998), on the other hand, considered that Moody's municipal bond ratings measure the financial competence of governments. They expected that if a government were appropriately supplying quasi-public goods, Moody's municipal bond rating of said government would be good. Empirically, however, the coefficient of Moody's municipal bond rating was not statistically significant.

From previous studies, we can see that there is no consistent finding in terms of statistical significance of both observable population heterogeneity and the size of governments. As such, it

¹ The following example illustrates what they did to obtain their religious fractionalization index.

Assume a hypothetical population of 10 million people, of whom 5 million are Catholics, 4 million- Protestants, and 1 million - Jews. The percentages of each religious group are, respectively, 50%, 40%, and 10%, respectively; or 0.5, 0.4 and 0.1. Consequently, the fractionalization index is

$$1 - \sqrt{0.5^2 + 0.4^2 + 0.1^2} = 0.352.$$

is worth reexamining the government failure theory and the interdependence theory, and we will do so in the next section.

3. The model

According to the preceding works, there are two typical measures to grasp the size of the nonprofit sector. One is the number of nonprofits divided by population or

$$\text{Definition A: } \textit{Size of Nonprofits} = \frac{\textit{Number of Nonprofits}}{\textit{Population}}.$$

Definition A is one way to implement the size comparisons among nonprofits varying by locality.

This definition is used by a significant number of researchers searching for admissible explanatory variables that explain the variation in size of the nonprofit sector by locality. Gronbjerg and Paarberg (2001), for example, defined the number of nonprofits in each of the 92 counties of Indiana State per 10,000 county inhabitants as the size of the nonprofit sector. Likewise, Marcuello (1998) counted the number of nonprofits in each 40 counties of Catalonia, Spain. Marcuello (1998), however, did not divide the resultant number by the county population. Instead, Marcuello (1998) added the county population to the explanatory variables so that the coefficient of the county population captures the scale effect. Technically speaking, what Marcuello (1998) did was the same as using definition A.

An alternative definition to definition A is

$$\text{Definition B: } \textit{Size of Nonprofits} = \frac{\textit{Paid Full - time Equivalent Employment}}{\textit{Nonagricultural Employment}}.$$

Part-time employment as well as volunteer employment is converted into paid full-time equivalent

employment. Definition B also eliminates the scale effect, and this definition is another way to implement the size comparisons of the nonprofit sector varying by locality². Based on this definition, Salamon et al. (2000) carried out several single regression analyses using a data set of 22 countries collected by the CNP, and claimed that the government failure theory is not robust.

However, it is conceivable that their claim could have been based on results from estimations based on the models with specification errors and/or with a small sample problem. In order to alleviate the small sample problem, we created a pooled data that consists of two typical nonprofit sub-sectors: the education sector and the health sector. The model to be estimated using this pooled data is given by

$$\text{Size of nonprofit}_{ij} = \mathbf{a}_j + \sum_{k=1}^3 \mathbf{b}_k x_{kij} + \mathbf{e}_{ij} \quad (1)$$

where $i = 22$ since we have 22 countries and $j = 2$ since we have two sectors. Thus, the sample size is now 44. Explanatory variables, x_{1ij} , x_{2ij} , x_{3ij} indicate the religious fractionalization, the public payments as a share of nonprofit revenues, and government expenditures on quasipublic goods, respectively. The term, \mathbf{e}_{ij} are typical disturbance terms, assumed to be identically independently distributed with mean zero and constant variance σ_e^2 . Table 2 shows the descriptive statistics of our data.

(Table 2)

² Note that we cannot examine the superiority between these two definitions because a definition is, by definition, not something that we can compare, but is simply an agreement within one model.

Following Salamon et al. (2000)³, this paper also regards the religious fractionalization index as a proxy for observable population heterogeneity. In order to refer to the estimation results by Salamon et al. (2000) as a benchmark, we, first of all, estimated their model⁴. Assuming that $\mathbf{b}_2 = \mathbf{b}_3 = 0$, their model is a nested model of equation (1) with no subscript J .

(Table 3)

The first column of Table 3 shows the result from our estimation assuming $\mathbf{b}_2 = \mathbf{b}_3 = 0$. As Salamon et al. (2000) claimed, observable population heterogeneity has no explanatory power on the size of the nonprofit sector. However, if we re-estimate their model using the log-log form, observable population heterogeneity has indeed an explanatory power as we can see from the second column of table 3, and therefore, it is worth reexamining the robustness of the government failure theory.

In order to empirically support the government failure theory, the following two conditions have to be met: one is that the coefficient of observable population heterogeneity (\mathbf{b}_1) is statistically significant and that its sign is positive. The other is that the coefficient of government expenditure (\mathbf{b}_3) is statistically significant and that its sign is negative. As we have already mentioned in the section 2, the government failure theory implies that the sign of the coefficient of

³ We thank S. Wojciech Sokolowski for providing us the data for the religious fractionalization index.

⁴ Before running regressions, Salamon et al. (2000) transformed their data into z-scores. However, we do not feel the need to carry out this data transformation for ordinary regression analysis.

observable population heterogeneity is negative because the government is a substitute for the nonprofit sector in the production of quasi-public goods (James, 1987). In addition, James (1987) claimed that the government was a complement in financing nonprofits because governmental subsidies were a major source of funds. Thus, we expect the coefficient of the public payments as a share of nonprofit revenues (b_2) to be positive if the revenue of the nonprofit sector depends more on subsidies from governments as the size of the nonprofit sector become larger.

In this paper, we focus on the education sector and on the health sector, not only because they are major nonprofit sub-sectors but also because only data on education and health are available to the best of our knowledge⁵. As we can see from the third column of Table 3, none of the independent variables have explanatory power in the education sector (Model 1). On the other hand, observable population heterogeneity (x_{1i}) and public payments to the health sector (x_{3i}) have explanatory powers in the health sector, but the coefficient of government expenditure on health (x_{2i}) is not statistically significant (Model 2). Thus, we cannot statistically support the government failure theory in both the education sector and the health sector. However, these results may be due to the small sample problem because 22 observations are not sufficient even for a simple regression. Therefore, in order to minimize the risk of facing this problem, we estimate equation 1 using the pooled data set. Note that the index data of observable population heterogeneity differs from one

⁵ See Human Development Report 1999 for government expenditure on education as a percentage of GDP and the World Health Report 1999 for government expenditure on health as a percentage of GDP.

country to another but shares the same value across the two sectors. The estimation of the pooling model and that of the one-way fixed effect model⁶ are shown in the third and fourth column of Table 3⁷. In each model the coefficient of observable population heterogeneity (\mathbf{b}_1) and that of public payments to the education sector and the health sector (\mathbf{b}_3) are statistically significant. Especially, the sign of the coefficient of observable population heterogeneity in each model is as the government failure theory implies. However, the coefficient of government expenditures on education and health (\mathbf{b}_2) is not statistically significant in each model, though the sign of the coefficient of government expenditures on education and health is negative as the government failure theory predicts.

The null hypothesis of $H_0 : \mathbf{a}_1 = \mathbf{a}_2$ can be rejected, and therefore, the one-way fixed effect model rather than the pooling model well suits for our data. Thus, sectoral unobservable population heterogeneity⁸ exists.

As is clear from Table 3, we can conclude that the interdependence theory does not explain the size of the nonprofit sector varying from one place to another because the coefficient of observable population heterogeneity is positive in the one-way fixed effect model. However, at the same time we cannot fully support the government failure theory. Yet, it is still conceivable that the

⁶ The one-way fixed effect model implies that covariance of unobservable population heterogeneity (\mathbf{a}_j) and explanatory variables need not be zero.

⁷ Variables are all natural logarithmic.

⁸ The stratification is not by country but by sector. This is because stratification by country consumes 22 degrees of freedom and therefore, there is no point in creating a pooling data in order to lower the risk of the small sample problem.

coefficient of government expenditures on the education and health sectors becomes statistically significant if the sample size is sufficiently large.

4. Concluding remarks

In this paper we revisited the research done by Salamon et al (2000) and empirically examined whether the government failure theory or the interdependence theory denoted a rational explanation for the size of the nonprofit sector varying from one place to another. Using the data set of 22 countries collected by CNP, Salamon et al. (2000) concluded that the interdependence theory explained a unique feature of the nonprofit sector: the size of the nonprofit sector differs from one place to another. However, 22 observations are not large enough to carry out even a simple regression. Furthermore, their results could have been based on a model for estimation with a specification error. Thus, we created a pooled data using CNP data and reexamined different specifications from Salamon et al (2000). This process expanded the sample size from 22 to 44, and made it possible to carry out a panel analysis. As a result, our analysis revealed that the interdependence theory did not explain the feature of the nonprofit sector. Our analysis also revealed that the government failure theory had a good chance of giving a rational explanation for a unique feature of the nonprofit sector. This must depend on the solution of the small sample problem. If such is the case, further data collection by CNP should solve this problem. In summary, our analysis suggests that the government failure theory should not be dismissed so quickly.

References

- Abzug, R. and Turnheim, J. K. (1998) Bandwagon or Band-Aid? A Model of Nonprofit Incorporation by State, *Nonprofit and Voluntary Sector Quarterly*, 27 (3), pp.300-322.
- Ben-Ner, A. and Van Hoomissen, T. (1992) An Empirical Investigation of the Joint Determination of the size of the For-profit, Nonprofit and Government Sectors, *Annals of Public and Cooperative Economics*, 63, pp.391-415.
- Corbin, J. J. (1999) A Study of Factors in Influencing the Growth of Nonprofits in Social Services, *Nonprofit and Voluntary Sector Quarterly*, 28, pp.296-314.
- Gronbjerg, K. A. and Paarlberg, L. (2001) Community Variations in the Size and Scope of the Nonprofit Sector: Theory and Preliminary Findings, *Nonprofit and Voluntary Sector Quarterly*, 30 (4), pp.684-706.
- James, E. (1987) The Nonprofit Sector in Comparative Perspective, in W.W. Powell Ed., *The Nonprofit Sector: A Research Handbook*, Yale University Press, pp.397-415.
- Marcuello, C. (1998) Determinants of the Non-Profit Sector Size: An Empirical Analysis in Spain, *Annals of Public and Cooperative Economics*, 69 (2), pp.175-192.
- Matsunaga Y. and Yamauchi N. (2001) Is the government failure theory still relevant?: A panel analysis using the U.S. state level data, Discussion Papers in Economics and Business, Graduate School of Economics and Osaka School of International Public Policy (OSIPP).
- Salamon, L. M., Sokolowski, S. W., and Anheier H. K. (2000) Social Origins of Civil Society: An Overview, Working Papers of the Johns Hopkins Comparative Nonprofit Sector Project.
- United Nations Development Programme (1999) *World Development Report 1999*, Published for the United Nations Development Programme, Oxford University Press.
- World Health Organizations (1999) *The World Health Report 1999*, World Health Organizations.