

ISTITUTO DI ECONOMIA E FINANZA

DIPARTIMENTO DI STUDI GIURIDICI  
FILOSOFICI ED ECONOMICI



**SAPIENZA**  
UNIVERSITÀ DI ROMA

# **PUBLIC FINANCE RESEARCH PAPERS**

**Efficient social policies with higher expenditure: an analysis for  
European countries**

MARIA ALESSANDRA ANTONELLI  
VALERIA DE BONIS

E-PFRP N. 35

2018

Maria Alessandra Antonelli  
Sapienza University of Rome  
Email: [alessandra.asntonelli@uniroma1.it](mailto:alessandra.asntonelli@uniroma1.it)  
Valeria De Bonis  
Sapienza University of Rome  
Email: [valeria.debonis@uniroma1.it](mailto:valeria.debonis@uniroma1.it)

Please cite as follows:

M. A. Antonelli and V. De Bonis (2018), "Efficient social policies with higher expenditure: an analysis for European countries", Public Finance Research Papers, Istituto di Economia e Finanza, DIGEF, Sapienza University of Rome, n. 35 (<http://www.digef.uniroma1.it/ricerca>).

E-PFRP N. 35

2018

## **Efficient social policies with higher expenditure: an analysis for European countries**

Maria Alessandra Antonelli

Valeria De Bonis

**Abstract.** Based on the construction of two indicators to assess the relative effectiveness and efficiency of European welfare policies, we show that the variability of efficiency cannot be explained only by the amount of resources devoted to social policies but also by the institutional environment. The OLS regression shows that institutional variables- such as accountability and honesty of public officials- have high significant effects on the efficiency.

**Key words:** Social policies, European welfare policies, Social public expenditure, Efficiency, Institutional framework, Accountability.

**JEL codes:** H53, H89, I 38

## 1. Introduction

In the last years, the political and socio-economic debates have often addressed the issue of the efficient use of public resources. Some empirical analyses point out a positive correlation between the dimension of the public sector and inefficiency. Afonso et al. (2005) find this result for a sample of 23 industrialized OECD countries. Dutu and Sicari (2016) also implement an efficiency analysis considering the per capita public spending on general services in 29 OECD countries; they show that there is a group of countries with potential efficiency gains achievable with a reduction in public spending. Other analyses have also focused on specific sectors of public intervention as health care and education (Afonso and St. Aubyn 2005; Agasisti 2011). In this framework, Herrera and Pang (2005) show that higher efficiency spending characterizes countries with lower expenditure levels in the sample considered<sup>1</sup>.

Therefore, policy implications often suggest measures of spending cuts also due, for European countries, to the European constraints on national finances. Italy, for example, has witnessed since 1986 a succession of commissions entrusted to implement a spending review process. With the same aim France is implementing la Revue Générale des Politiques Publiques since 2008.

Given the heterogeneity in qualitative and quantitative characteristics of different sectors of public spending, a disaggregated analysis of its outcomes can be useful to perform an effectiveness and efficiency analysis. To this purpose, we use two synthetic indicators summarizing the Performance and the Efficiency of public social expenditure in a comparative perspective. As a second step, we investigate the correlation between institutional variables and the efficiency of social policies.

---

<sup>1</sup> They consider a sample of 140 developing countries in the period 1996-2002  
E-PFRP N. 35

## 2. The Social Protection Performance Index and Efficiency

Following Antonelli and De Bonis (2017, 2018) we propose a composite performance index for all sectors of social protection, as specified in the OECD Social Expenditure Database (SOCX): family, health, labour market, elderly, disabled, unemployment, and inequality for 22 European countries (2013 OECD data<sup>2</sup>). Then, we select outcomes indicators for each sector: maternal employment and net disposable family income for the family's policies; life-expectancy at birth for the health sector; the unemployment rates for labour market; the net replacement rates for the elderly and the unemployed; the average monetary benefits for disabled; the Gini index and the poverty index.

As a second step, we aggregate the selected sectoral outcomes to construct a synthetic index representing the social benefit provided – on average – to citizens through public social policies. Our Social Protection Performance Index (SPPI) is such that higher values represent better results. Finally, we propose an efficiency index (*SEEI*) as the ratio of net social per capita expenditure to the performance index<sup>3</sup>. We use economic variables net of fiscal measures as a more appropriate measure of the benefit produced by social public expenditure. Table 1 summarizes the results and Figure 1 shows the correlation between Efficiency and Social Public Expenditure.

---

<sup>2</sup> The last year for which it is possible to construct a complete database.

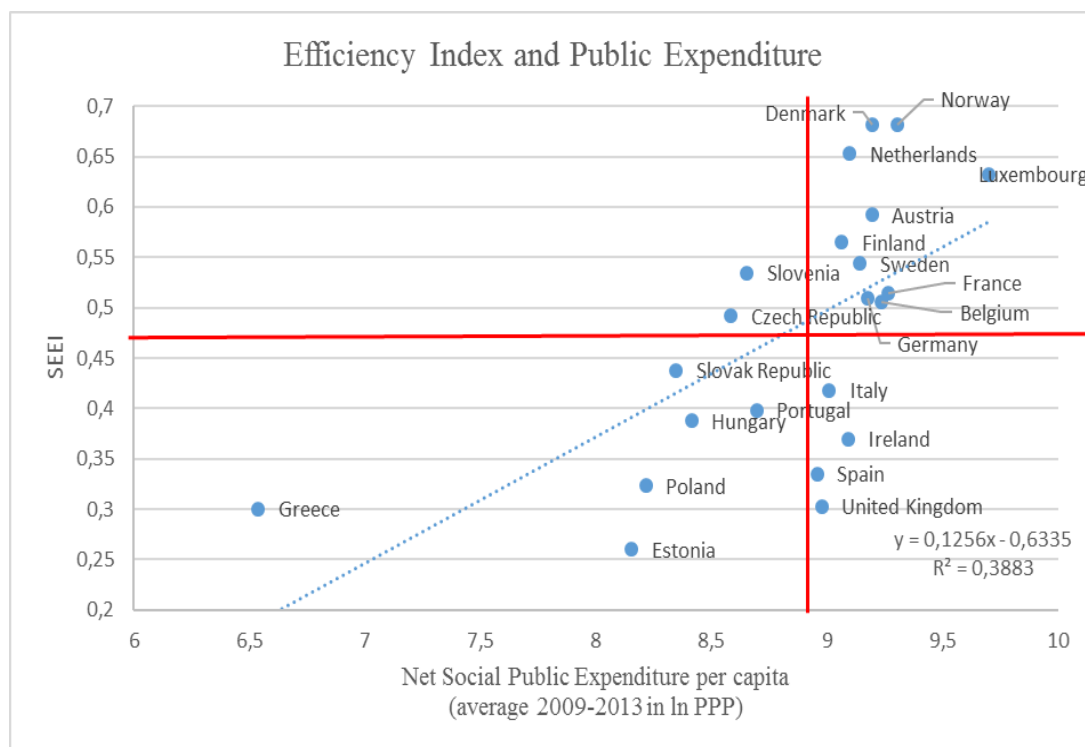
<sup>3</sup> For the reference data and the methodological notes about the SPPI see Antonelli and De Bonis (2017; 2018a; 2018b, 2018 c).

**Table 1 Social protection performance index and efficiency index (2013)**

<b>countries</b>	<b>SPPI</b>	<b>SEEI</b>
Austria	5,44563	0,592148
Belgium	4,66809	0,505517
Czech Republic	4,22247	0,492013
Denmark	6,26494	0,68136
Estonia	2,12361	0,260486
Finland	5,12133	0,565107
France	4,76798	0,514526
Germany	4,67597	0,509464
Greece	1,96281	0,30026
Hungary	3,26386	0,387846
Ireland	3,36137	0,369684
Italy	3,76974	0,418354
Luxembourg	6,13577	0,632443
Netherlands	5,94269	0,653232
Norway	6,34456	0,681662
Poland	2,65613	0,323229
Portugal	3,46175	0,398094
Slovak Republic	3,65407	0,437929
Slovenia	4,62833	0,534846
Spain	3,00292	0,335238
Sweden	4,97201	0,543739
United Kingdom	2,72018	0,303011

*Source: Antonelli and De Bonis (2018c)*

**Figure 1 Social expenditure efficiency index and social public expenditure**



Source: Elaboration on OECD data

Higher efficiency characterizes countries with higher social expenditure levels: Nordic (Finland, Denmark, Sweden and Norway) and Continental (Austria, Belgium, France, Germany, Luxembourg and Netherlands) welfare systems. This could suggest that spending on social protection has not reached the diminishing marginal product phase, at least in the countries under consideration (Antonelli and De Bonis 2018). In general, Figure 1 also shows some inter-country variability of the efficiency level. Some Mediterranean countries (Italy and Spain) and the Anglo- Saxon countries (Ireland and UK) associate high expenditure levels (above the average level equal to 8,81) to low efficiency (below the average level equal to 0,47). Consequently, the amount of resources cannot be the only explicative variable of efficiency.

### 3. Investigating inefficiency

Antonelli and De Bonis (2018) carry out an efficiency analysis for the same set of countries and show that GDP and the education level have a positive

effect on efficiency, while the country dimension (i.e. population) and some institutional variables -such as bureaucratic red tape, corruption and the selectivity degree of the welfare system- have a negative impact.

It is known that institutional, political and organizational variables represent a potential source of inefficiency called “organizational inefficiency“ or “X inefficiency” (Leibenstein 1976). Among the main factors on which to invest to reduce this kind of inefficiency there are: the accountability of officials managing public policies and the citizens’ control through their voice power to promote best practices. While the first point mainly requires ex ante investment in Education and Ethics, the second requires the improvement of the process to acquire information to exercise the ex post control.

The public choice literature has analysed in a wide perspective the inefficiency of the public sector focusing on the opportunistic behaviour of public officials (Niskanen 1975; Migué and Bélanger 1974) mainly deriving from the difficulty to define a precise relationship between inputs and outputs, asymmetric information and organizational design. These contributions have highlighted a positive correlation between inefficient management of public policies and institutional and political elements. In this framework, Adam et al. (2011) consider institutional and political variables- such as voters turnout and fiscal decentralization - showing that they are highly significant in explaining the efficiency of general public services in 19 OECD countries in the period 1980-2000.

In this paper we extend the previous analysis (Antonelli and De Bonis 2017, 2018) investigating the correlation between the efficiency of social spending (SEEI) and a new wider set of institutional variables representing the accountability of public officials and the tools making the voice power of citizens effective.

To this purpose, we use survey data from the Global Competitiveness Index database<sup>4</sup> relative to the following institutional variables:

- ✓ The appropriate use of public funds measuring the use of public funds for institutional goals;
- ✓ The pursuit of the institutional goals by public officials, that is, how much government officials’ decisions do not result in favoritism to lobbies and individuals when deciding upon policies and contracts;

---

<sup>4</sup> To our knowledge, the more complete database on these institutional variables.



- ✓ Transparency, representing how easy it is for citizens to obtain information about policies or procedures from public institutions.

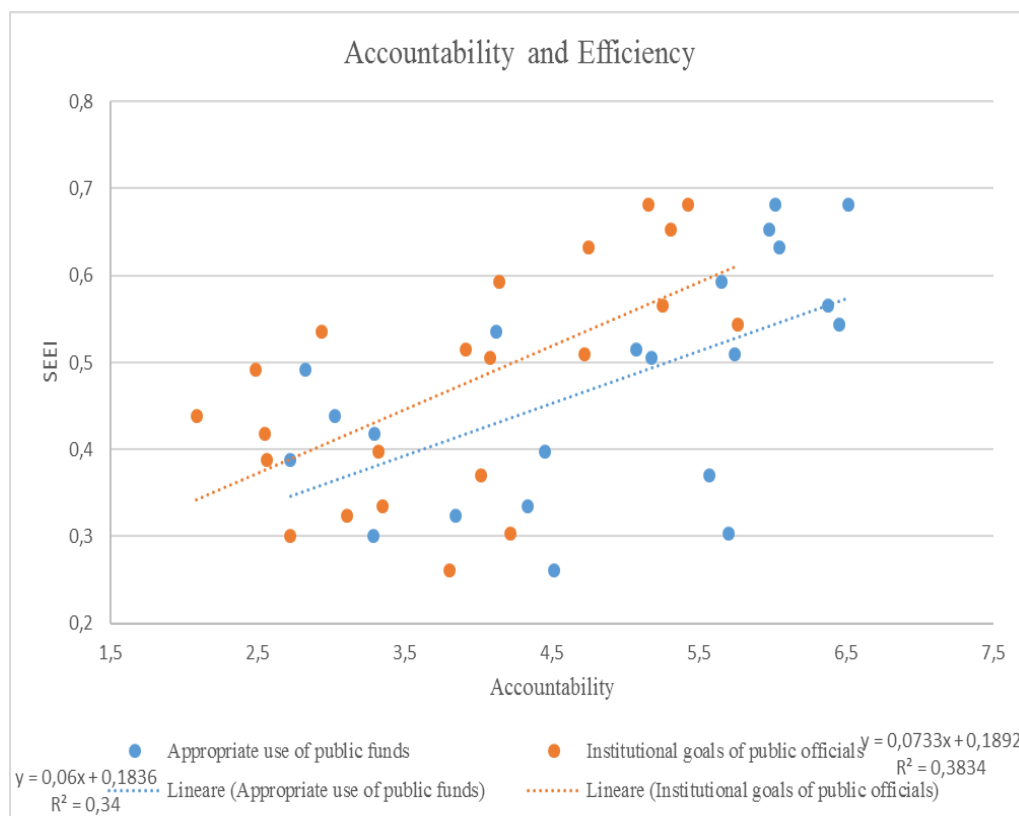
The first two variables can both be considered alternative proxies for the accountability of public officials. In addition we also consider:

- ✓ Honesty (or ethics), summarizing how widespread are non- corrupt behaviours of public officials and the ethical standards of politicians' behaviours (in other words, it can be considered a sort of the inverse of corruption). Honesty can also be interpreted as an alternative indicator of accountability, but it covers a wider range of agents' behaviours.

Figure 2 shows the relationship between efficiency (SEEI) and accountability.

All data are calculated as the average value 2009-2013.

## Figure 2 Accountability and Efficiency



Source: elaboration on OECD and GCI data

To better investigate the correlation between the institutional framework and efficiency, we estimate the following regression equation by OLS:

$$Eff_i = \alpha X_i + \varepsilon_i$$

Where  $Eff_i$  is the vector of the efficiency indicator (SEEI),  $X_i$  is a vector of socio-economics and institutional variables,  $\alpha$  is the vector of the coefficients to be estimate and  $\varepsilon_i$  is the errors vector.

In the regression the following socio-economics and institutional variables are considered:

- Per capita GDP as a proxy for the resources devoted to social policies;
- The share of secondary school graduates within the population aged 25-64, as a proxy for the competence of bureaucrats managing social policies as well as for the citizens' ability to control and highlight inefficient practices;
- An index of Accountability calculated as a linear combination of the two variables “appropriate use of funds” and “institutional goals of public officials”;
- The transparency of public institutions as defined above;
- The honesty of public officials as defined above.

Table 2 summarizes the results:

**Table 2 OLS results (dependent variable: SEEI)**

	Model 1		Model 2		Model 3		Model 4	
<b>GDP</b>	3,95	(2,034)	4,04	(1,71)	4,06	(1,751)	3,94	(1,88)
	*		**		**		**	
<b>Accountability</b>	0,07	(0,018)	0,04	(0,018)	0,04	(0,018)		
	***		**		**			
<b>School</b>			0,28	(0,093)	0,31	(0,134)	0,31	(0,14)
			***		**		**	
<b>Transparency</b>					0,006	(0,022)	0,004	(0,02)
<b>Honesty</b>							0,04	(0,02)

							**	
<b>No. of obs.</b>	22		22		22		22	

*Notes:* St. errors in brackets.

\*, \*\*, \*\*\* are significant at the 10, 5 and 1% levels, respectively

GDP per capita: average value 2009-2013. Source: OECD

Schooling: graduates in secondary school (25-64 years). Source: OECD

Accountability: source GCI average value (2009-2013) of the items “Diversion of public funds” (code 1.3) and “Favoritism in decisions of government officials” (code 1.07)

Transparency: source GCI average value 2009-2013 “Transparency of government policymaking” (code 1.12)

Honesty: source GCI average value 2009-2013 “Ethics and corruption” (code 2)

We find that GDP and schooling affect the efficiency of social spending in all considered specifications.

The sign of “accountability” is positive and significant in all models. To evaluate the strength of the result, we have also run the model replacing the “accountability” variable with the item “Honesty” from the survey data in the Global Competitiveness Index. This variable is inversely correlated with corruption and its results is significant at the 5% level with a positive coefficient. The transparency of public organizations is not significant in the analysis. A possible interpretation could be that the ex-ante investment on education and ethics to increase the accountability is a more effective tool to improve efficiency than relying on the ex post control of citizens made possible by more information.

#### 4. Conclusions

In this paper we show that the institutional framework affects in a significant way the efficiency of public social policies. The econometric analysis points out that, rather than the socio-economics variables (per capita GDP and education), the accountability of policy-makers and bureaucrats managing social public policies has an explanatory effect on the efficiency.

In particular, some variables as “appropriate use of public funds” and “public officials’ goals consistent with the institutional ones” (both summarized in the “accountability” variable) have a significant positive effect on efficiency. Honesty, as an alternative measure of accountability, also results highly significant. Also the investment in education and ethical standard seems to be relevant to improve the efficiency use of public resources.

## References

- Adam, A., Delis, M., and Kammas, P. Public sector efficiency: levelling the playing field between OECD countries. *Public Choice*. 2011, **146**:163-183.
- Afonso, A., and Aubyn, M. St. Cross-country efficiency of secondary education provision: a semi-parametric analysis with non-discretionary inputs. *Economic Modelling*. 2006, **23**(3): 476-491.
- Afonso, A., Schuknecht, L., and Tanzi, V. Public Sector Efficiency: An International Comparison. *Public Choice*. 2005, 123: 321-347.
- Agasisti, T. Performances and spending efficiency in higher education: a European comparison through non-parametric approaches. *Education Economics*. 2011, **2**:199-224.
- Antonelli, M. A., and De Bonis, V. Social Welfare, Spending and Redistribution: A Comparative Analysis of 22 European Countries. *Modern Economy*. 2017, **8**: 1291-1313.
- Antonelli, M. A., and De Bonis, V. Welfare State and Social Spending: Assessing the Effectiveness and the Efficiency of European Social Policies in 22 EU countries. *Public Finance Research Papers*. 2018 a), No. 32, Sapienza University of Rome. <http://www.digef.uniroma1.it/ricerca>
- Antonelli, M. A., and De Bonis, V. Assessing the performance of social spending in Europe. *Central European Journal of Public Policy*. 2018 b), **12**(1): 1-15.
- Antonelli, M. A., and De Bonis, V. The efficiency of social public expenditure in European countries: a two-stage analysis. *Applied Economics*. 2018 c).
- Dutu, R., and Sicari, P. Public Spending Efficiency in the OECD: Benchmarking Health Care, Education and General Administration. *OECD Economic Department Working Papers*. 2016, No. 1278.
- Herrera, S., and Pang, G. Efficiency of Public Spending in Developing Countries: An Efficiency Frontier Approach. *Policy Research Working Paper*. 2015, No. 3645, World Bank.
- Leibenstein, H. On the Basic Proposition of X-Efficiency Theory. *American Economic Association*. 1978, 328-332.
- Migué, J. L., and Bélanger, G. Towards a general theory of managerial discretion. *Public Choice*. 1974, **17**: 23-43.
- Niskanen, W. A. *Bureaucracy and representative government*. 1971, Chicago: Aldine.



Public Finance Research Papers are a publication of the Istituto di Economia e  
Finanza, DIGEF, Sapienza University of Rome –  
<http://www.digef.uniroma1.it/pubblicazioni>

Contact: [e-pfrp@uniroma1.it](mailto:e-pfrp@uniroma1.it)

E-PFRP N. 35

2018