

The efficiency of social protection in partially decentralized country - evidence from Poland

(preliminary)

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Partial decentralization:

- Transfer of public tasks from higher level of government to local governments, while their tax autonomy remained the same.
- New tasks are financed by transfers, in significant part by earmarked grants from central governments.
- These new tasks, which must be implemented by local governments, are often strictly defined by law.
- In Poland grants from the central government are in many cases below the level necessary to cover all legally required expenditures.
- In Poland social protection at the level of municipalities is mostly restricted to social assistance.
- Part of it, like help for people below the poverty line or long term care are heavily regulated. while issues like fight against social exclusion or help for the elderly are not regulated at all.

Objective of the research

Verify what factors affect the changes in the efficiency of local governments.

Methodology:

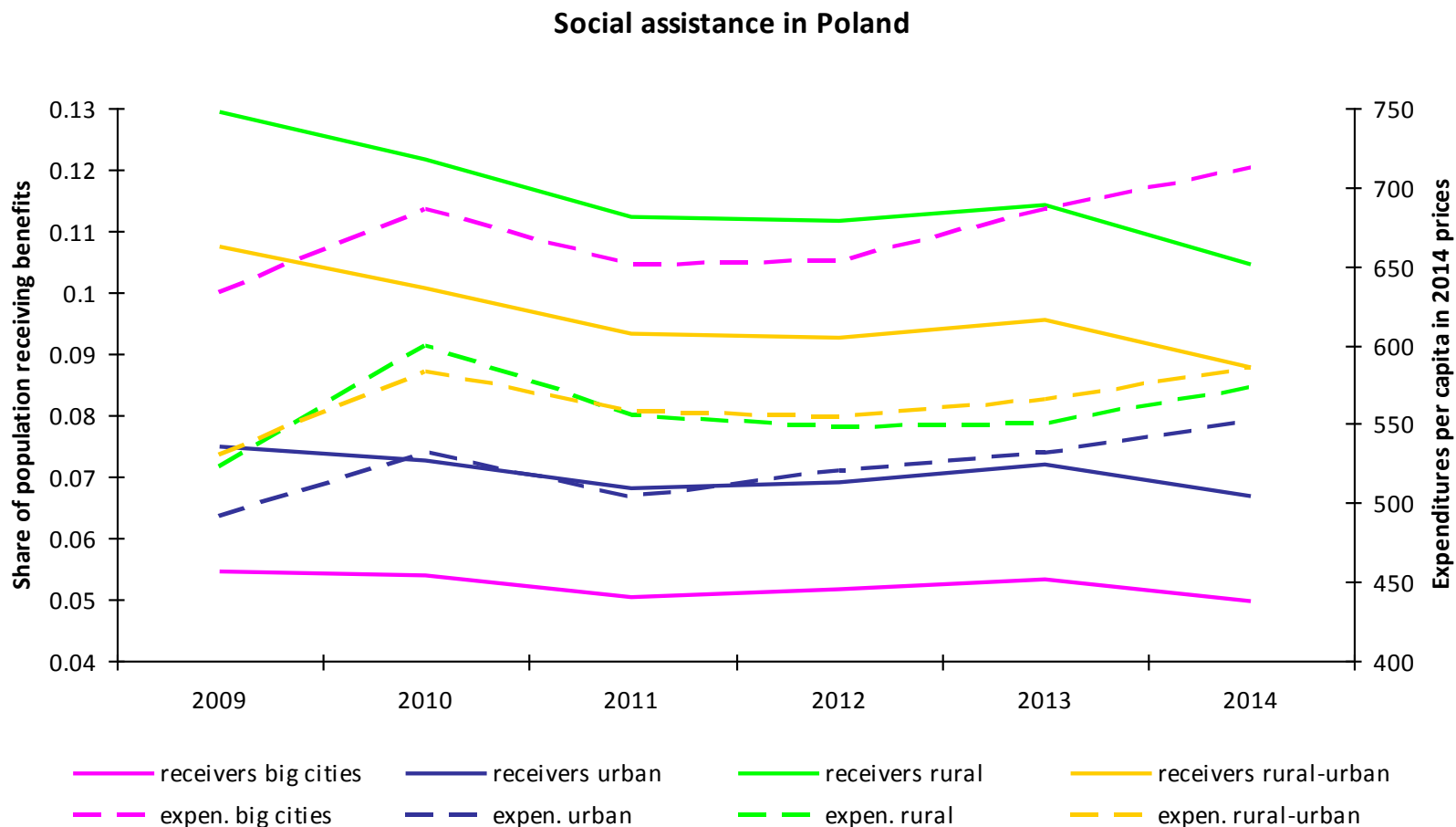
- Data Envelopment Analysis for all Polish municipalities using Malmquist indices.
- Panel analysis.

Data 2009-2014:

- Local Data Bank, Polish Central Statistical Office – municipal characteristics,
- Ministry of Finance – budgetary data of local governments,
- Ministry of Family, Work and Social Policy – municipal social assistance reports.

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Source: own calculations based on data from Polish Local Data Bank, Ministry of Finances and Ministry of Family, Work and Social Policy



How to measure the efficiency of social assistance?

- How many people were helped out of poverty – unrealistic in Poland.

Inputs:

- Direct transfers from the central government.
- Own resources of a municipality.

Outputs:

- Share of households below the poverty line in all households receiving social assistance,
- Ratio of social assistance benefits to social assistance wage expenditures,
- Ratio of people receiving benefits in kind and benefits for particular purpose to people receiving long term monetary benefits.

Malmquist index:

- Shows changes in efficiency in time.
- Assuming constant returns to scale can be interpreted as an index of total factor productivity (TFP).
- Can be decomposed into:
 - An index showing pure change of efficiency of DMU.
 - An index showing change in technology, resulting in a shift in the production possibility frontier.

$$MI_{i,(t,t+1)} = \frac{\delta_i^{t+1}(k_{t+1}, y_{t+1})}{\delta_i^t(k_t, y_t)} \times \left[\frac{\delta_i^t(k_t, y_t)}{\delta_i^{t+1}(k_t, y_t)} \times \frac{\delta_i^t(k_{t+1}, y_{t+1})}{\delta_i^{t+1}(k_{t+1}, y_{t+1})} \right]^{1/2}$$

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Summary results of Malmquist index and its components - urban municipalities

Malmquist index					
	2010	2011	2012	2013	2014
mean	0.93	0.97	1.03	0.94	0.96
st. dev.	0.10	0.12	0.09	0.11	0.10
min.	0.31	0.70	0.47	0.21	0.62
max.	1.33	2.25	1.34	2.08	1.74
No increases	40	79	166	30	50
No falls	215	170	75	233	202
No insignificant (0,05)	48	54	62	40	51
Yearly change	-0.07	-0.03	0.03	-0.06	-0.04
Cumulative change	-0.07	-0.09	-0.06	-0.11	-0.15
Efficiency change					
mean	1.00	1.00	0.92	1.06	1.00
st. dev.	0.10	0.12	0.11	0.19	0.09
min.	0.35	0.69	0.43	0.54	0.69
max.	1.64	2.19	1.13	2.71	1.77
No increases	25	45	2	53	27
No falls	26	48	125	4	35
No insignificant (0,05)	252	210	176	246	241
Yearly change	0.00	0.00	-0.08	0.06	0.00
Cumulative change	0.00	0.00	-0.07	-0.01	-0.01
Change of technology					
mean	0.96	0.98	1.11	0.92	0.92
st. dev.	0.07	0.05	0.14	0.12	0.12
min.	0.74	0.83	0.74	0.36	0.36
max.	1	1.28	1.45	1	1
No increases	0	2	146	0	0
No falls	79	52	1	119	119
No insignificant (0,05)	224	249	156	184	184
Yearly change	-0.04	-0.02	0.11	-0.08	-0.08
Cumulative change	-0.04	-0.05	0.05	-0.03	-0.11

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Summary results of Malmquist index and its components - rural municipalities

Malmquist index					
	2010	2011	2012	2013	2014
mean	0.89	0.95	1.02	0.96	0.93
st. dev.	0.12	0.17	0.16	0.12	0.12
min.	0.18	0.35	0.50	0.44	0.48
max.	1.85	5.07	2.92	1.90	2.11
No increases	115	339	702	384	245
No falls	1223	938	548	944	1112
No insignificant (0,05)	216	277	304	226	197
Yearly change	-0.11	-0.05	0.02	-0.04	-0.07
Cumulative change	-0.11	-0.16	-0.14	-0.17	-0.24
Efficiency change					
mean	0.95	0.97	1.06	1.03	0.90
st. dev.	0.12	0.18	0.16	0.14	0.14
min.	0.19	0.48	0.53	0.47	0.46
max.	1.90	4.94	2.62	2.17	1.90
No increases	70	198	639	372	88
No falls	584	472	191	329	968
No insignificant (0,05)	900	884	724	853	498
Yearly change	-0.05	-0.03	0.06	0.03	-0.10
Cumulative change	-0.05	-0.08	-0.02	0.01	-0.08
Change of technology					
mean	0.97	0.99	0.98	0.95	0.95
st. dev.	0.06	0.11	0.05	0.07	0.07
min.	0.39	0.69	0.66	0.73	0.73
max.	1	1.50	1.32	1.19	1.19
No increases	0	199	55	65	65
No falls	306	495	545	676	676
No insignificant (0,05)	1248	860	954	813	813
Yearly change	-0.03	-0.01	-0.02	-0.05	-0.05
Cumulative change	-0.03	-0.03	-0.06	-0.11	-0.16

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Summary results of Malmquist index and its components - urban-rural municipalities

Malmquist index					
	2010	2011	2012	2013	2014
mean	0.91	0.95	1.03	0.96	0.94
st. dev.	0.12	0.12	0.13	0.11	0.10
min.	0.46	0.34	0.63	0.65	0.43
max.	2.47	1.58	2.17	1.80	1.61
No increases	57	123	288	124	75
No falls	438	342	161	348	402
No insignificant (0,05)	74	104	120	97	92
Yearly change	-0.09	-0.05	0.03	-0.04	-0.06
Cumulative change	-0.09	-0.13	-0.10	-0.14	-0.20
Efficiency change					
mean	0.99	0.94	1.05	0.97	1.08
st. dev.	0.13	0.11	0.13	0.11	0.12
min.	0.50	0.35	0.69	0.65	0.48
max.	2.43	1.53	2.43	1.86	1.80
No increases	75	28	192	40	294
No falls	124	281	48	212	26
No insignificant (0,05)	370	260	329	317	249
Yearly change	-0.01	-0.06	0.05	-0.03	0.08
Cumulative change	-0.01	-0.06	-0.02	-0.05	0.03
Change of technology					
mean	0.94	1.02	0.98	1.00	1.00
st. dev.	0.06	0.05	0.05	0.03	0.03
min.	0.74	0.80	0.68	0.87	0.87
max.	1	1.19	1.11	1.10	1.10
No increases	0	134	1	44	44
No falls	290	9	107	30	30
No insignificant (0,05)	279	426	461	495	495
Yearly change	-0.06	0.02	-0.02	0.00	0.00
Cumulative change	-0.06	-0.04	-0.06	-0.06	-0.06

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Factors influencing Malmquist index: panel analysis - urban municipalities

	Malmquist index		Efficiency change		Change of technology	
y(t-1)	-0.4007576	***	-0.2950685	***	-0.0081084	
PIT	-0.0000586		-0.0001677		0.0002061	**
CIT	0.0001006		0.0002386	*	-0.0001088	
current expenditures	-4.98E-06		-0.0000217		0.0000168	
investment expenditures	-8.62E-06		4.00E-06		-8.10E-06	
current exp. from EU	-0.0004973	***	-0.0003579		-0.0000272	
expenditure autonomy	-0.2153608		-0.5162728	***	0.6261034	***
revenues autonomy	-0.0565936		0.0159205		-0.1700094	*
NGO/10000	0.0030799		0.0017317		0.0019351	
dependency ratio	0.0002005		-0.0000838		-0.0052872	**
firms/10000	4.04E-06		-4.22E-06		0.0000172	***
selfemployed/1000	0.0023062		0.001786		0.000591	
unemployment	0.0000615		-0.0028301		-0.0000933	
population	2.07E-06		5.56E-06	*	-6.92E-06	*
share of elderly	0.0333096	**	0.0373813	*	0.0308147	*
share of 85+ in elderly	-0.0001458		0.0000655		-0.0000144	
poverty level	0.0003549		-0.0023136	**	0.0024287	***
2013	-0.0716572	**	0.1374716	***	-0.2742926	***
2014	-0.1245055		0.1018355		-0.1659802	**
cons	0.4032342		1.662356	***	-0.643373	

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Factors influencing Malmquist index: panel analysis - rural municipalities

	Malmquist index		Efficiency change		Change of technology	
y(t-1)	-0.3588819	***	-0.4043592	***	-0.1527788	***
PIT	-0.0000362		-0.0000143		-0.0002186	***
CIT	0.0002375		0.0000876		0.0002162	***
current expenditures	-0.0000624	***	-0.0000346	*	-2.40E-05	*
investment expenditures	-1.00E-05	**	-0.000018	***	0.0000121	***
current exp. from EU	-0.0004251	***	-0.000592	***	0.0001054	***
expenditure autonomy	-0.0247541		0.0235472		0.006047	
revenues autonomy	0.1059998	**	0.0659371		-0.0457105	
NGO/10000	0.0029069	**	0.0043726	***	-0.000919	
dependency ratio	0.001361		0.0052376	***	0.0015191	***
firms/10000	-7.59E-05		-0.0002473		-0.000033	
selfemployed/1000	0.0007294		0.0025646		0.0005491	
unemployment	0.0071145	**	0.0066051	**	0.0024524	
population	-2.78E-05		-0.0000209		-0.0000483	***
share of elderly	-0.0080818		-0.0276781	***	-0.0164091	***
share of 85+ in elderly	-0.0006479	**	0.0002968		-0.0003652	***
poverty level	-0.0001987		-0.0026786	***	-0.0007107	**
2012	0.1044656	***	0.2716439	***	0.0511209	***
2013	0.0859752	**	0.2669678	***	0.0396854	**
cons	1.695713	***	3.040397	***	2.162476	

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Factors influencing Malmquist index: panel analysis - urban-rural municipalities

	Malmquist index		Efficiency change		Change of technology	
y(t-1)	-0.3371826	***	-0.3736406	***	-0.2239003	***
PIT	-0.0001052		-0.0000952		2.83E-07	
CIT	-0.000063	**	0.0000405		-0.000069	***
current expenditures	-0.0000241		-0.0000196		-1.58E-06	
investment expenditures	-3.19E-06		5.48E-06		-5.80E-06	***
current exp. from EU	-0.000589	***	-0.0006735	***	0.0000891	**
expenditure autonomy	0.1284542		-0.024745		0.1082271	**
revenues autonomy	-0.001601		0.031742		-0.0254373	
NGO/10000	0.0029757		0.0023943		0.000921	
dependency ratio	0.003258	**	-0.0023341		0.0016101	***
firms/10000	0.0000963		0.0002631		-0.0002417	**
selfemployed/1000	0.0004641		-0.0036074		0.002392	**
unemployment	0.0021519		-0.0033944		0.0016109	
population	-0.0000168		-2.91E-06		-0.0000113	*
share of elderly	-0.0292247	***	-0.0073763		-0.0103265	***
share of 85+ in elderly	-0.0002631		-0.0000861		-0.0001211	**
poverty level	0.0017118	***	0.001373	***	-0.0001917	***
2013	-0.035498	**	-0.0308093	**	0.0135382	***
2014	-0.1673037	***	0.1172253	*	-0.0243309	
cons	0.9445355	***	0.9672504	***	1.588339	***

Thank you. Comments and suggestions are appreciated.