

Short-term distributional effects of public education transfers in seven European countries

Tim Callan

Economic and Social Research Institute, Dublin, IRELAND

Tim Smeeding

Luxembourg Income Study and Syracuse University, USA

Panos Tsakloglou

Athens University of Economics and Business, GREECE

Paper presented in the conference

“Funding, Equity and Efficiency of Higher Education”,

Portorož (Slovenia), 21-24 November 2007

Research carried out in the framework of the EU-supported research project “Accurate Income Measurement for the Assessment of Public Policies (AIM-AP)”

Objectives

- Distributional studies normally relying on distributions of (equivalised) disposable income (or consumption expenditure)
- But, individuals derive utility from the consumption of purchased as well as non-purchased commodities (privately or publicly provided)
- Present paper part of a larger research project (AIM-AP) aiming to analyse , among other things, the short-term distributional effects of a number of non-cash income components in seven EU countries (B, D, GR, IRL, IT, NL, UK)
- Public education services, prominent among them

Education systems in the selected countries: Similarities and differences

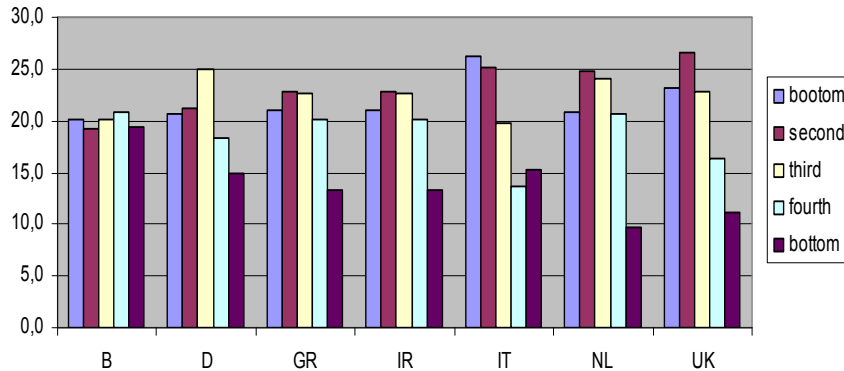
- Education systems of the seven countries similar, if compared with the rest of the world.
- But, significant differences
 - Federal vs non federal systems
 - Role of private education
 - Pre-primary education
 - Upper secondary education
 - Numerus clausus or not in tertiary education
 - + students living with their parents, student residencies, forming their own households
 - years of studies
 - + information availability

Data and methods

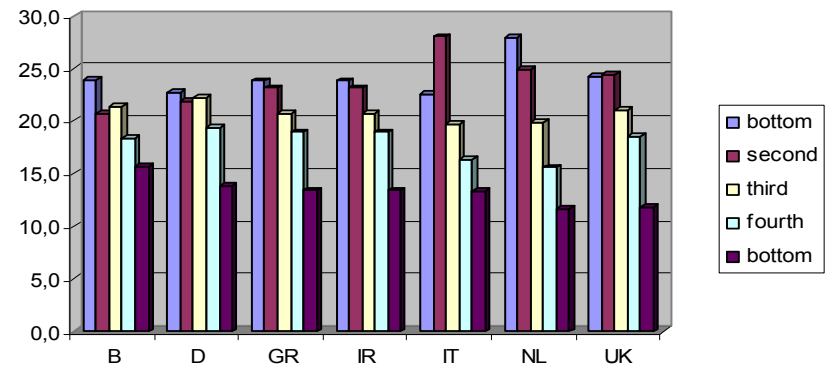
- “Education at a glance 2006”
- Matched to national income distribution data
- Early 2000s
- Primary, secondary, tertiary, disregarding other stages (pre-primary, post-secondary non-tertiary, etc)
- Static incidence analysis under the assumption of no externalities

Results I: Distribution of beneficiaries per quintile

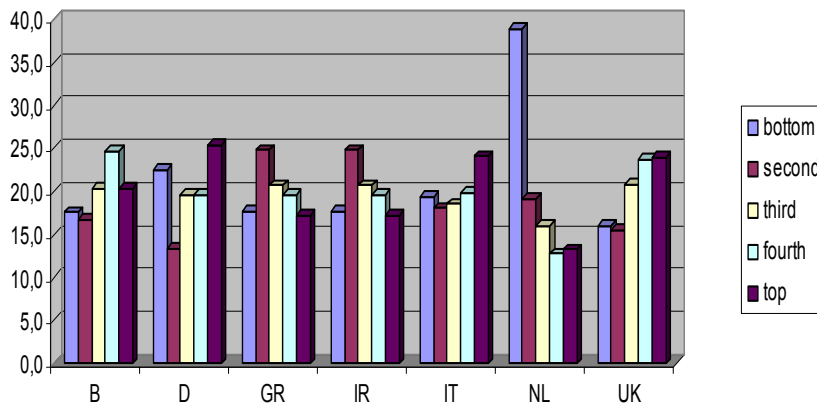
Distributions of Beneficiaries per Quintile: Primary Education



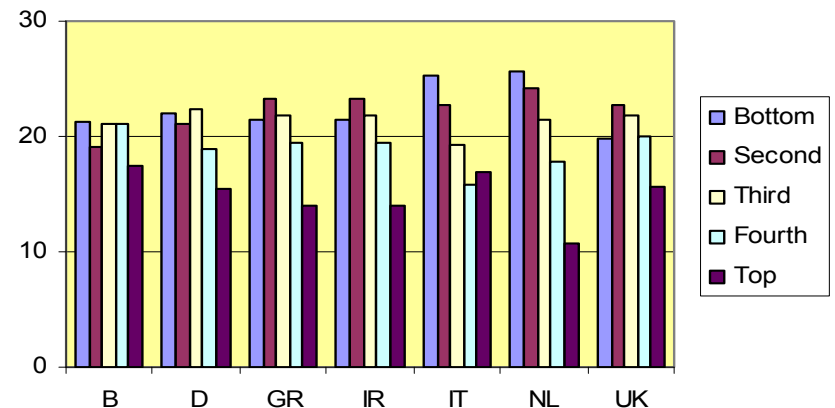
Distribution of beneficiaries per quintile: Secondary Education



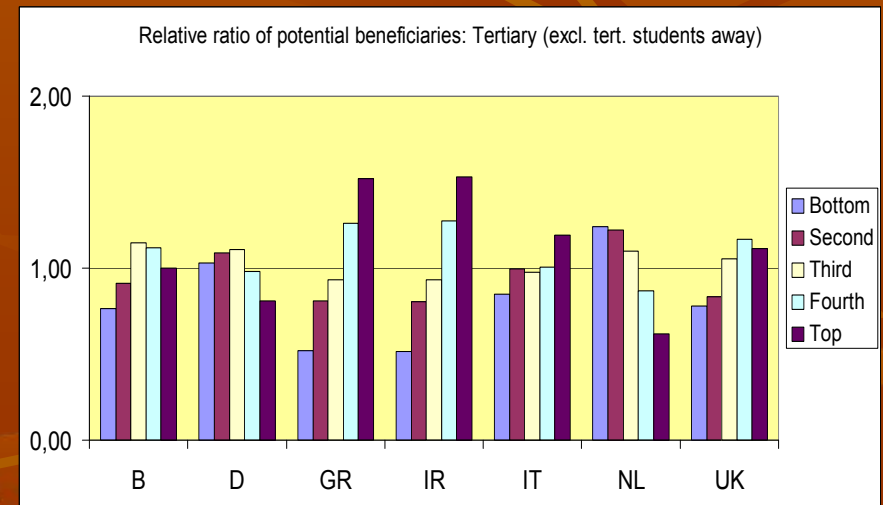
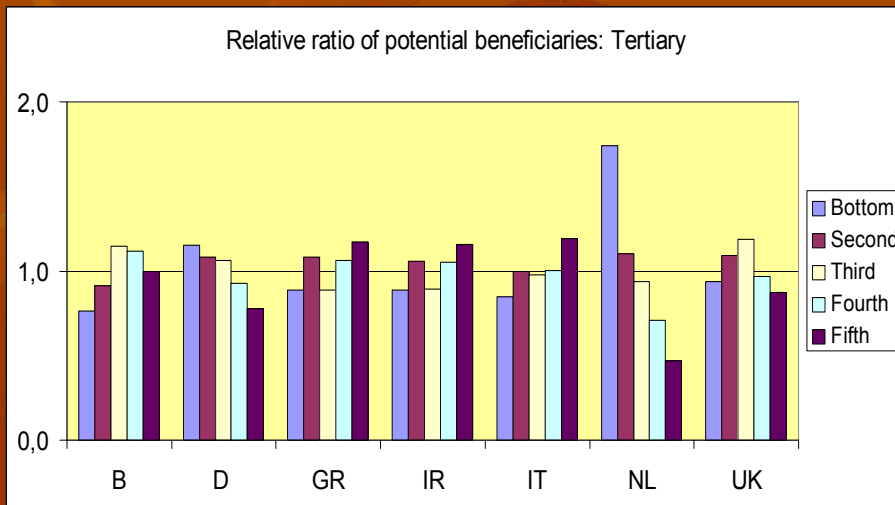
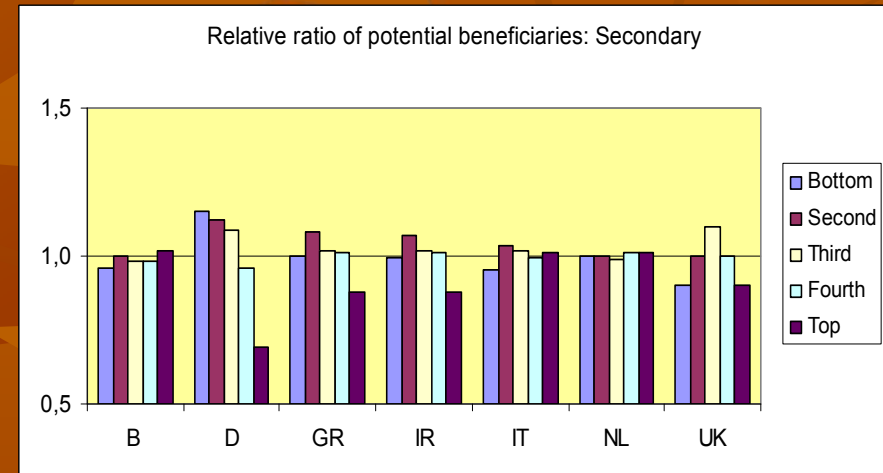
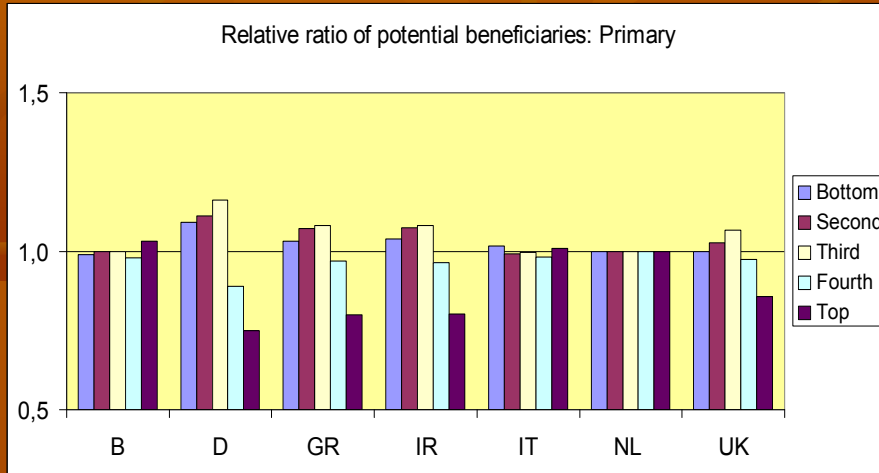
Distribution of beneficiaries per quartile: Tertiary Education



Distribution of beneficiaries per quintile: All

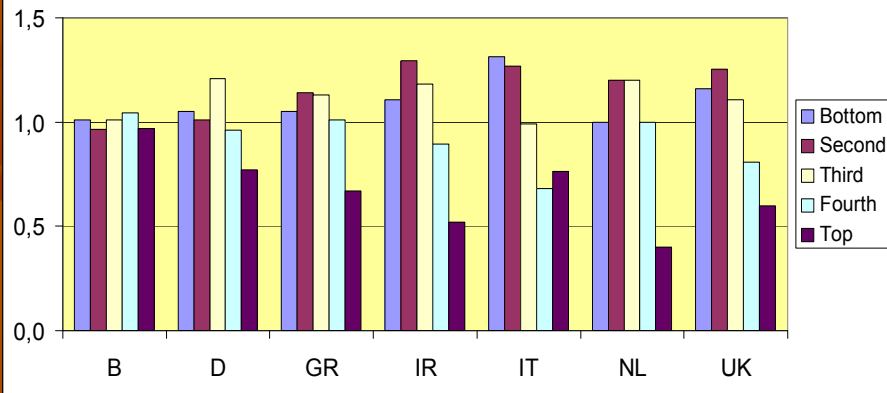


Results II: Relative ratio of potential beneficiaries

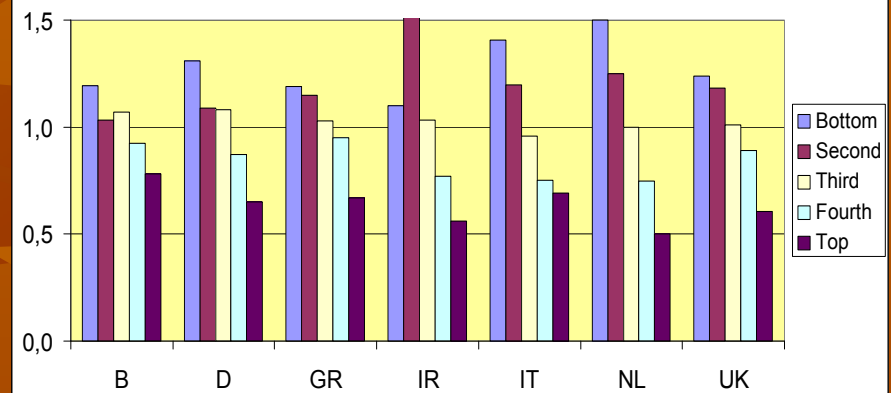


Results III: Relative mean transfer per capita

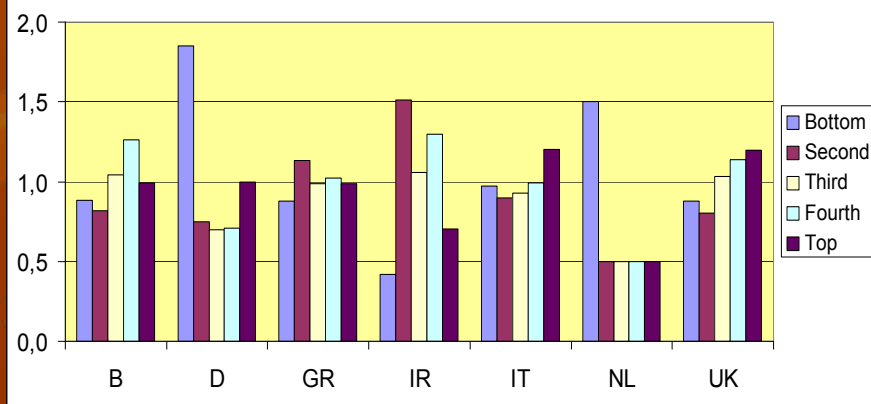
Relative mean transfer per capita: Primary



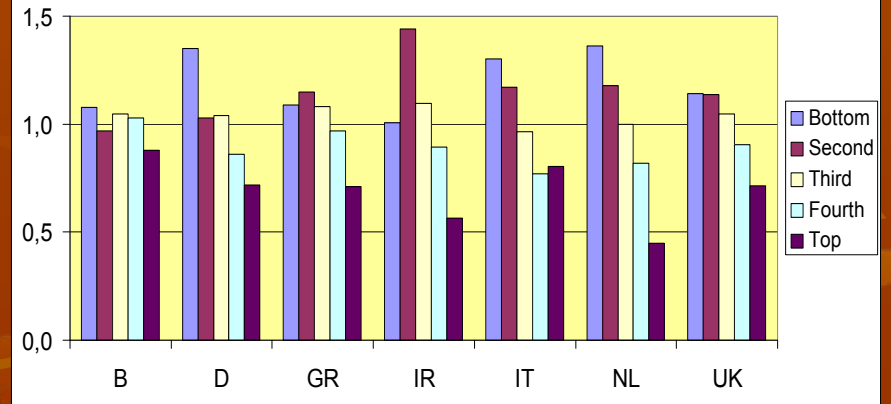
Relative mean transfer per capita: Secondary



Relative mean transfer per capita: Tertiary

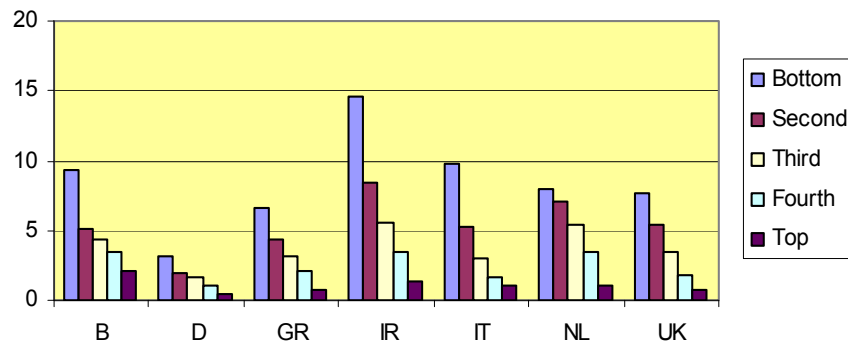


Relative mean transfer per capita: All

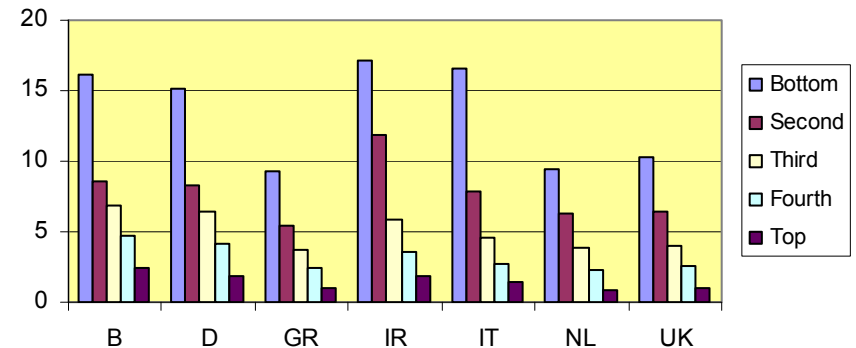


Results IV: Proportional increase in disposable income per quintile

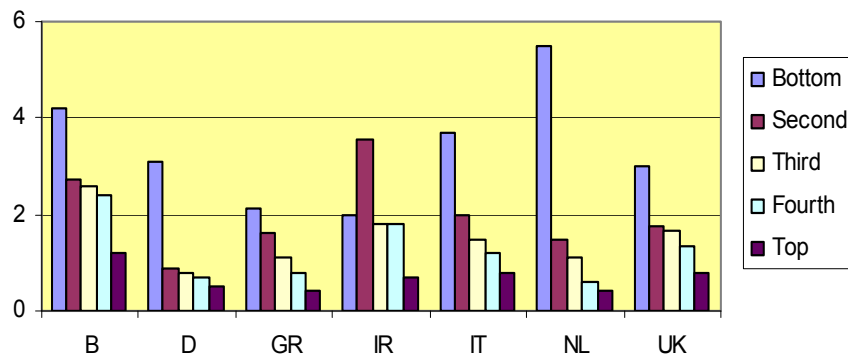
Increase in disposable income by quintile: Primary



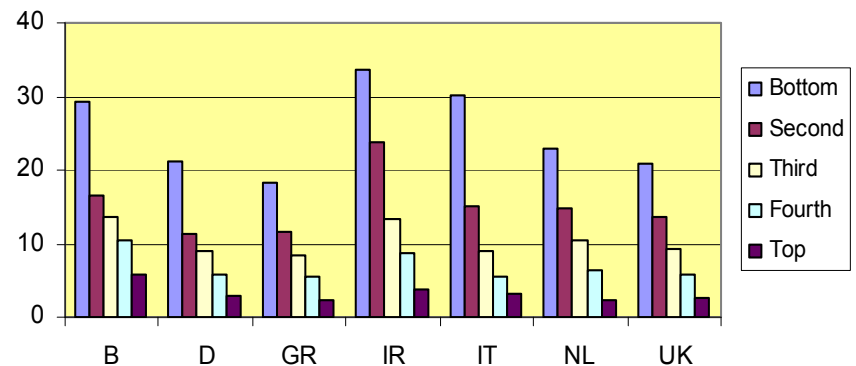
Increase in disposable income by quintile: Secondary



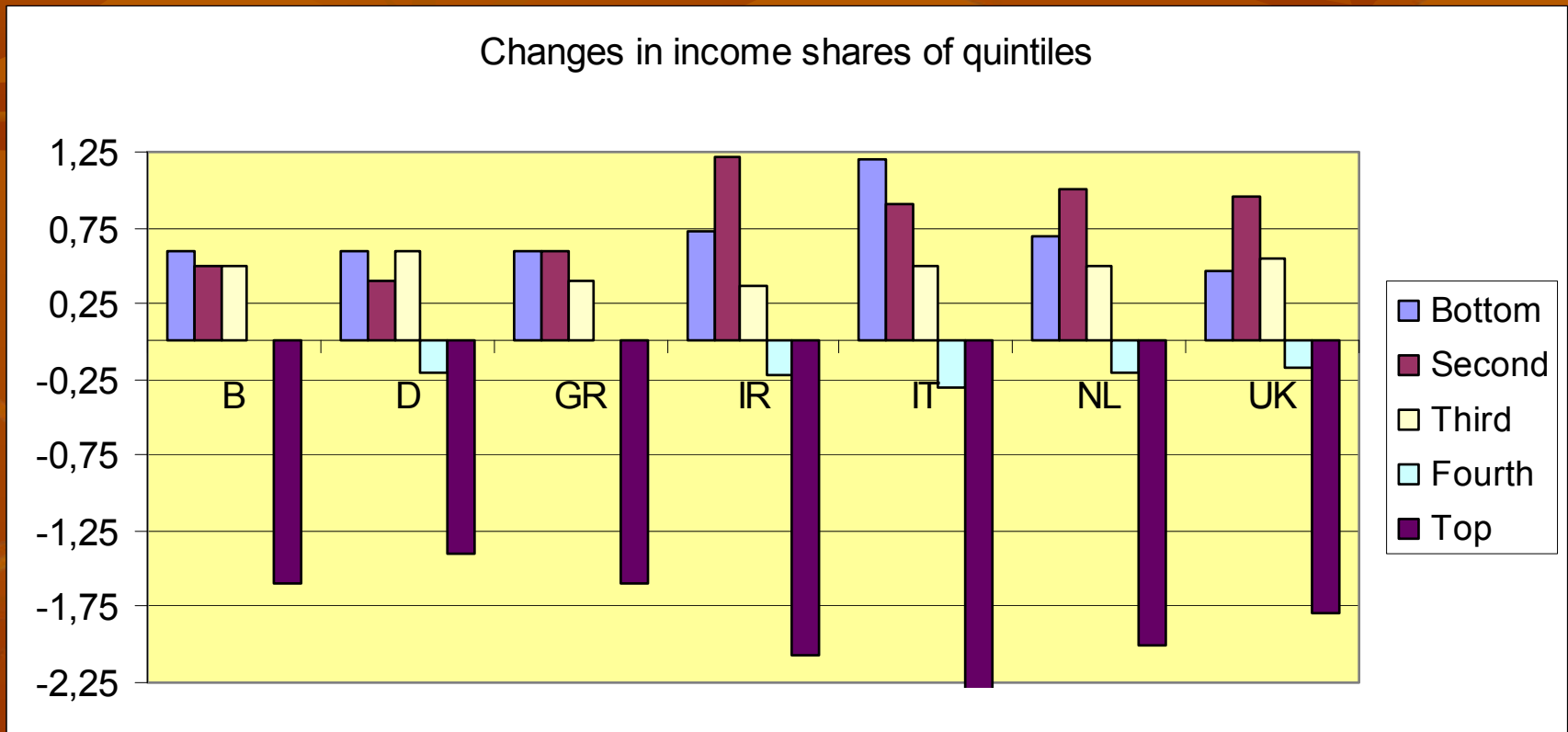
Increase in disposable income by quintile: Tertiary



Increase in disposable income: All

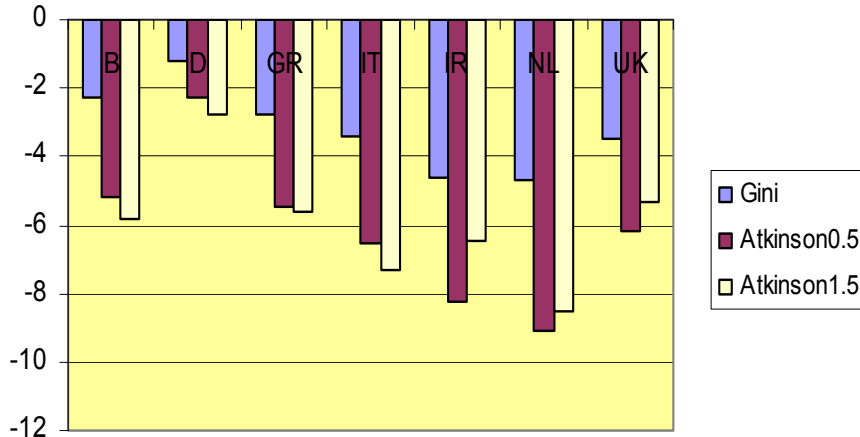


Results V: Changes in quintile income shares

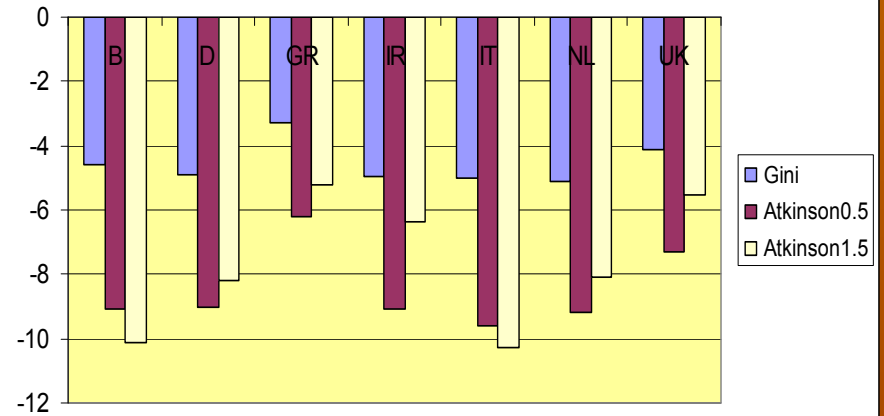


Results VI: Changes in inequality by level

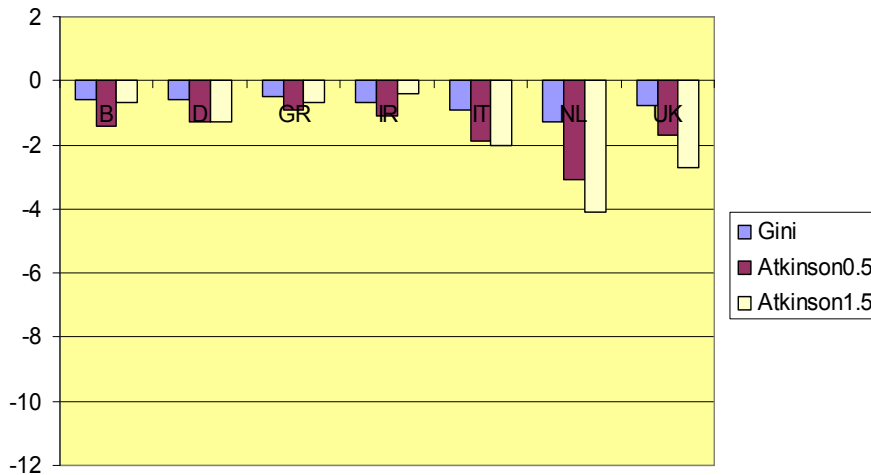
Proportional change in inequality: Primary



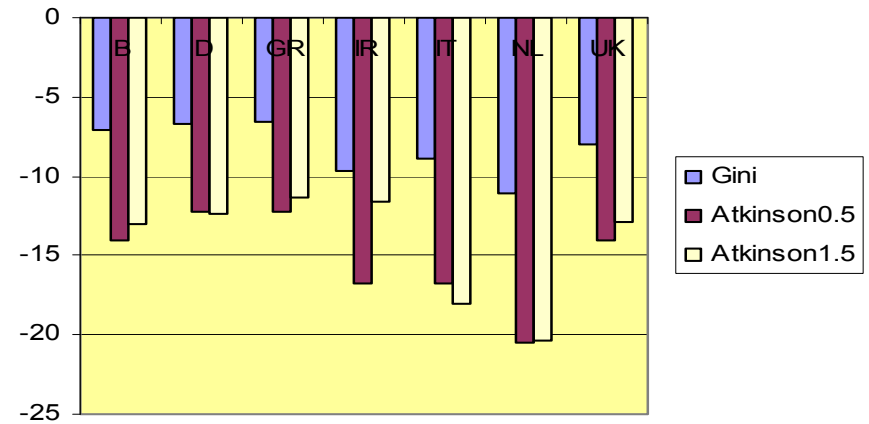
Proportional change in inequality: Secondary



Proportional change in inequality: Tertiary

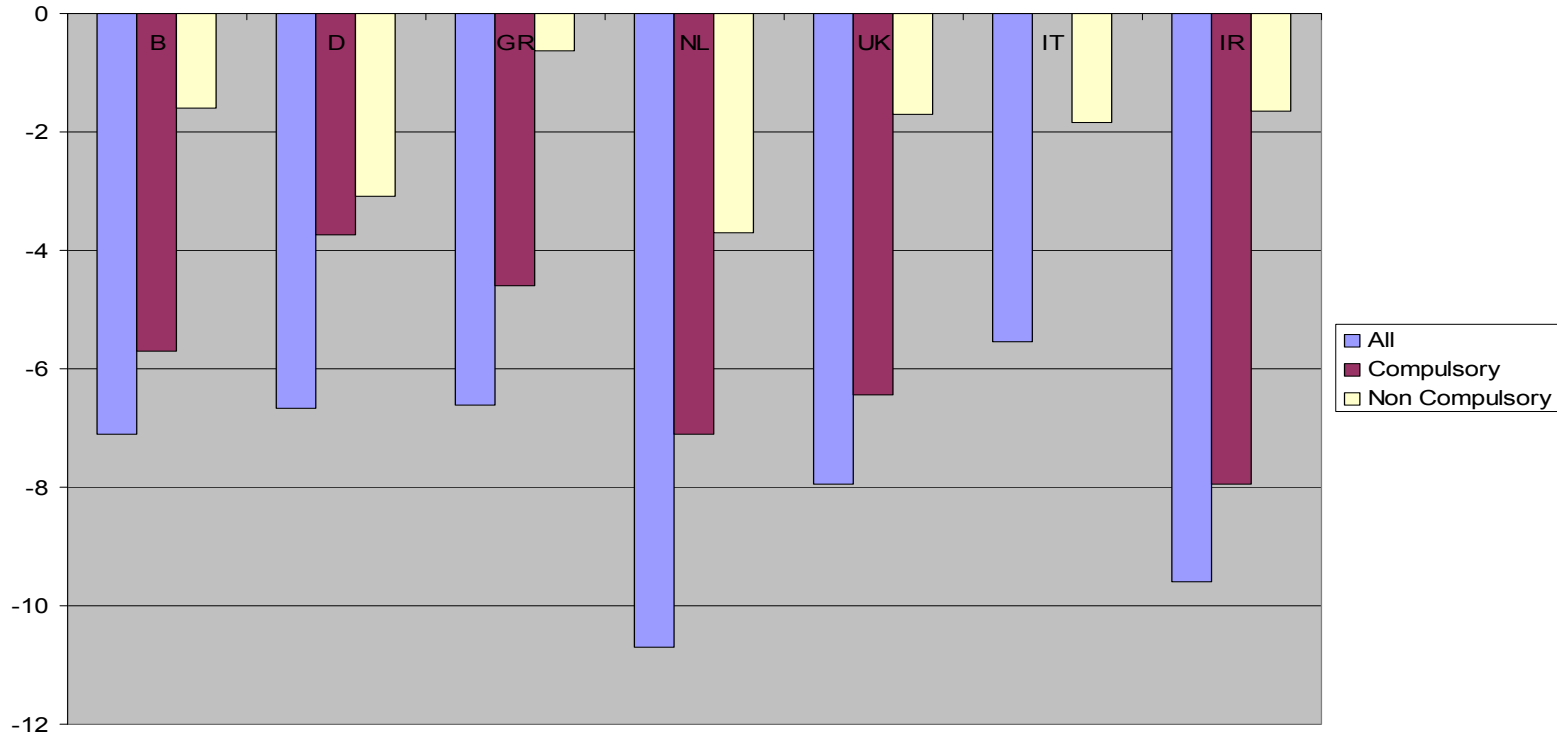


Proportional change in inequality: All



Results VII: Aggregate Changes in Inequality (compulsory and non compulsory education)

Aggregate Changes in Inequality (Gini index)



(Provisional) Conclusions

- Public education transfers reduce inequality, at least in a static framework.
- Similar pattern but substantial cross-country differences in quantitative terms
- Changes driven by transfers in primary and secondary education
- Relatively minor effects of tertiary education transfers

Tertiary education sensitivity analysis: “Universities” and “Polytechnics”

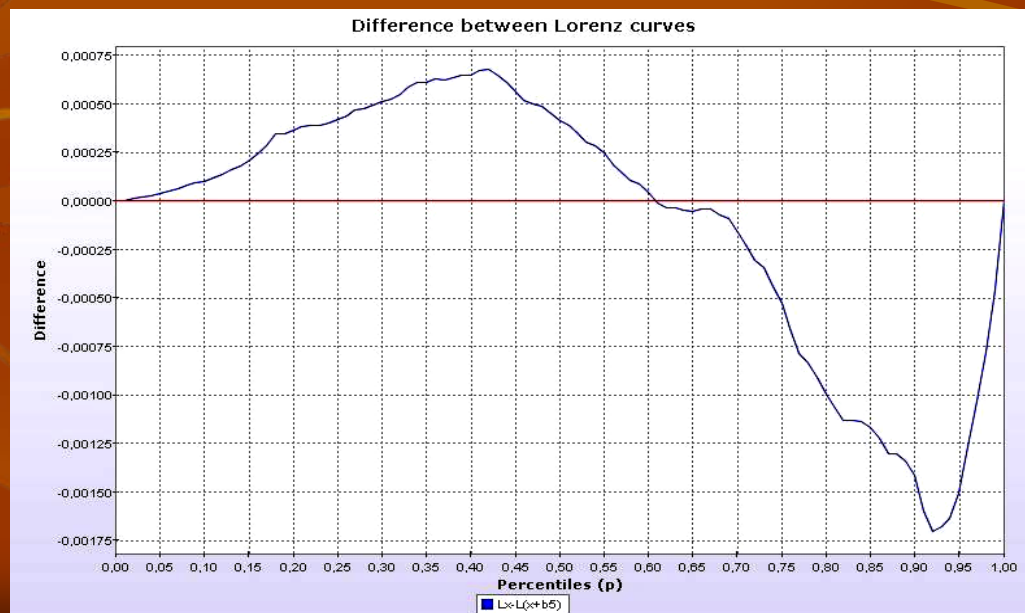
Number of students and structure of public expenditure in the Greek education system 2004-2005

		Students	%	Current Spending	Capital Spending	Total Spending	Total
Primary	Public	740.167	94,0	1.634.948.193	160.121.571	1.795.069.764	2.425
	Private	47.134	6,0				
	All	787.301	100,0				
Secondary	Public	652.346	94,3	2.072.791.866	246.178.877	2.318.970.742	3.555
	Private	39.572	5,7				
	All	691.918	100,0				
Tertiary A (AEI)		225.265	56,0	919.690.761	508.287.388	1.427.978.149	6.339
Tertiary B (TEI)		177.229	44,0	309.708.442	52.807.226	362.515.667	2.045
	All	402.494	100,0				

Distribution of all households

Inequality

Inequality Indices	Baseline	Baseline + All Transfers	Baseline + Primary	Baseline + Secondary	Baseline + Post-Sec. Non-tertiary	Baseline + TEI	Baseline + AEI
Gini	0,3252	0,3037	0,3159	0,3143	0,3247	0,3241	0,3250
Atkinson0,5	0,0863	0,0756	0,0814	0,0809	0,0860	0,0858	0,0860
Atkinson1,5	0,2424	0,2154	0,2287	0,2298	0,2414	0,2414	0,2428
Atkinson2,0	0,3198						0,3207
Atkinson2,5	0,4063						0,4079
% change							
Gini		-6,6	-2,9	-3,3	-0,2	-0,3	-0,1
Atkinson0,5		-12,3	-5,6	-6,2	-0,3	-0,6	-0,3
Atkinson1,5		-11,1	-5,7	-5,2	-0,4	-0,4	0,2
Atkinson2,0							0,3
Atkinson2,5							0,4



Distribution of tertiary education students in deciles

Decile	TEI students			AEI students		
	All	In parental home	Living alone	All	In parental home	Living alone
1 (bottom)	8,2	4,6	15,6	9,6	2,9	20,7
2	10,4	7,9	15,3	6,8	4,0	11,2
3	15,9	8,8	30,3	10,9	3,8	22,7
4	16,3	15,5	17,9	10,2	7,7	13,7
5	12,3	13,2	10,3	10,2	9,2	12,6
6	11,7	15,3	4,4	8,4	9,1	7,2
7	7,7	9,9	3,3	10,4	14,1	5,3
8	8,4	11,1	2,8	11,3	15,8	4,2
9	3,7	5,4	0,0	12,7	18,6	1,0
10 (Top)	5,5	8,2	0,0	9,5	14,8	1,4
	100,0	67,2	32,8	100,0	64,2	35,8

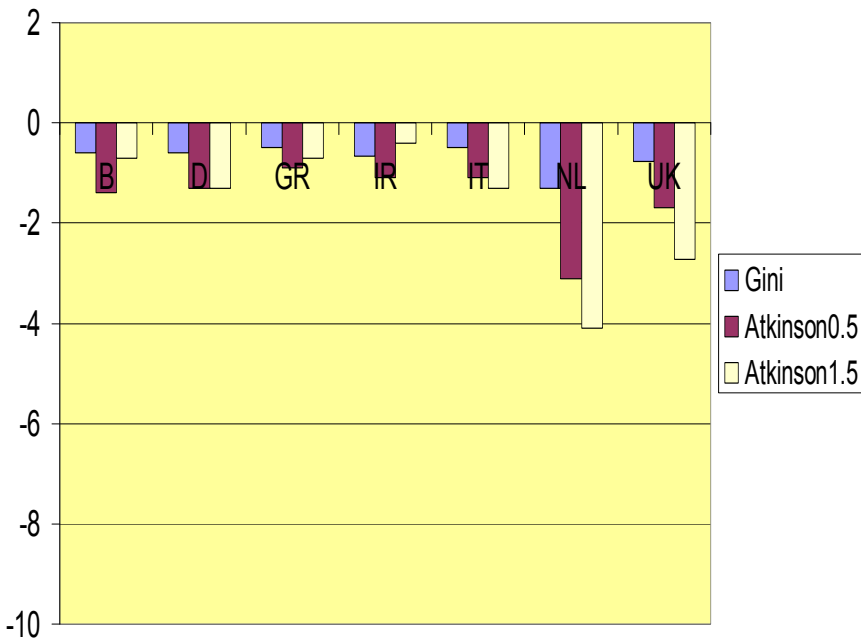
Distribution of all households (no students away from parental home)

Inequality

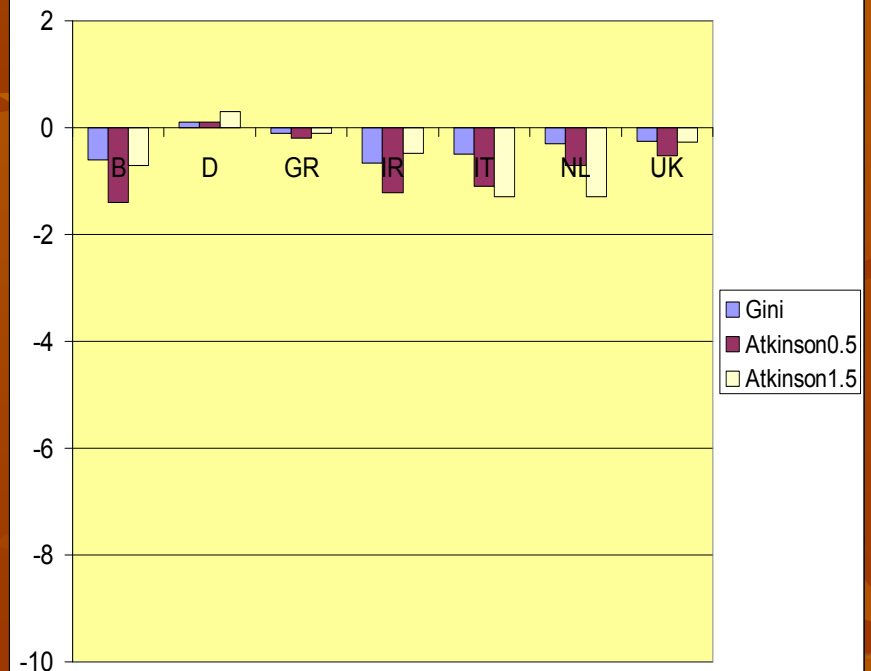
Inequality Indices	Baseline	Baseline + All Transfers	Baseline + Primary	Baseline + Secondary	Baseline + Post-Sec. Non-tertiary	Baseline + TEI	Baseline + AEI
Gini	0,3251	0,3050	0,3156	0,3140	0,3245	0,3245	0,3260
Atkinson0,5	0,0862	0,0762	0,0813	0,0807	0,0859	0,0859	0,0865
Atkinson1,5	0,2423	0,2168	0,2283	0,2294	0,2413	0,2418	0,2438
% change							
Gini		-6,2	-2,9	-3,4	-0,2	-0,2	0,3
Atkinson0,5		-11,6	-5,7	-6,3	-0,3	-0,3	0,4
Atkinson1,5		-10,5	-5,8	-5,4	-0,4	-0,2	0,6

Tertiary education sensitivity results I: With and without students living away from the parental home

Proportional change in inequality: Tertiary



Proportional change in inequality: Tertiary (excl. stud. away)



Distribution of households with members aged 4-24

Inequality

Inequality Indices	Baseline	Baseline + All Transfers	Baseline + Primary	Baseline + Secondary	Baseline + Post-Sec. Non-tertiary	Baseline + TEI	Baseline + AEI
Gini	0,3117	0,2751	0,2959	0,2923	0,3108	0,3106	0,3134
Atkinson0,5	0,0805	0,0628	0,0725	0,0713	0,0800	0,0800	0,0811
Atkinson1,5	0,2295	0,1783	0,2041	0,2066	0,2275	0,2286	0,2320
% change							
Gini		-11,8	-5,1	-6,2	-0,3	-0,4	0,6
Atkinson0,5		-21,9	-10,0	-11,4	-0,6	-0,6	0,7
Atkinson1,5		-22,3	-11,1	-10,0	-0,9	-0,4	1,1

Distributions of persons

% change in relative inequality after public education transfers

Inequality index	5-11	12-17	18-24		
			All transfers	TEI transfers	AEI transfers
Gini	-18,4	-19,5	-1,4	-2,2	1,6
Atkinson0,5	-33,3	-33,6	-3,7	-3,6	1,3
Atkinson1,5	-36,1	-30,2	-1,6	-2,5	2,5

% change in absolute inequality after public education transfers

Inequality index	5-11	12-17	18-24		
			All transfers	TEI transfers	AEI transfers
Gini (v=2)	-2,3	1,8	13,2	0,3	14,0
Gini (v=3)	-1,8	3,5	14,2	0,7	14,7
Gini (v=4)	-1,5	4,8	14,5	1,0	14,7

Comparison of living standards of persons aged 35-50 according to their educational qualifications

Educational level	Mean equivalised consumption expenditure (Group Mean: 100.0)	Quintile				
		1 (bottom)	2	3	4	5 (top)
Primary completed or less	79.7	35.9	24.6	17.0	15.6	7.0
Lower secondary	90.0	29.7	22.8	22.3	12.6	12.7
Upper secondary	109.7	14.3	21.4	23.5	21.7	19.1
TEI	133.5	10.5	15.6	18.3	26.8	28.9
AEI	147.1	5.9	9.4	14.1	27.5	43.1
MSc/PhD	175.7	0.0	6.0	10.6	12.2	71.2

Conclusions

- *Public education transfers reduce inequality, at least in a static framework.*
- *Similar pattern but substantial cross-country differences in quantitative terms*
- *Changes driven by transfers in primary and secondary education*
- *Relatively minor effects of tertiary education transfers*
- *Ambiguous effects of tertiary education transfers*
- *Results very different – esp. regarding University level transfers – if absolute inequality indices are used instead of relative ones*
- *Long-term effects likely to be quite different*