On the Robustness of Multidimensional Povert Orderings in the EU

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Session 4F

Title:

On the Robustness of Multidimensional Poverty Orderings in the EU

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Background

There is a consensus that poverty exists in many dimension.

Alkire and Foster (2011a) propose an approach to measure poverty in a multidimensional context.

– This approach uses weights for the identified dimensions.

– No guidelines for setting these weights.

– Equal weighting is most often used.

Goal of the paper

"The goal of this paper is to assess the extent to which the cross-country and cross-year comparisons in Europe are robust to changes in weights." (p.3)

1. Check the robustness of pair-wise comparisons (between countries and between years)
2. For those comparisons where dominance can't be assumed they focus further on the maximum change of weights to preserve the initial ranking

Measurement Framework

Counting approach to poverty measurement.

Alkire, S. and Foster, J. (2011a). Counting and Multidimensional Poverty Measurement. *Journal of Public Economics*, 95(7-8):476-487.

N individuals, D > 1 indicators

x_{nd} equals the score of individual n in dimension d

z_d equals the threshold in dimension d

If $(x_{nd} < z_d)$, then Π = 1

Measurement Framework

The deprivation score for individual n is given by

$$c_n = \sum_{d=1}^{D} w_d \, \Pi(x_{nd} < z_d)$$

If the deprivation score c_n is larger than the cut-off k, a person is considered poor. The sum of poor people as a percentage of population is the poverty indicator.

Focus of this article is on w_d

Data source is EU-SILC (2004-2013)

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Data

EU SILC

European Union Statistics on Income and Living Conditions

Years: 2004-2013

31 countries

307,577 observations in 2004

588,608 in 2013

Three dimensions

1. Monetary poverty: the equivalised disposable income is below 60% of median income
2. Material poverty: the household can't afford 4 out 9 items: i. to face unexpected expenses; ii. one week annual holiday away from home; iii. to pay for arrears (mortgage or rent, utility bills or hire purchase instalments); iv. a meal with meat, chicken or fish every second day; v. to keep home adequately warm; vi. a washing machine; vii. a colour TV; viii. a telephone; ix. a personal car.
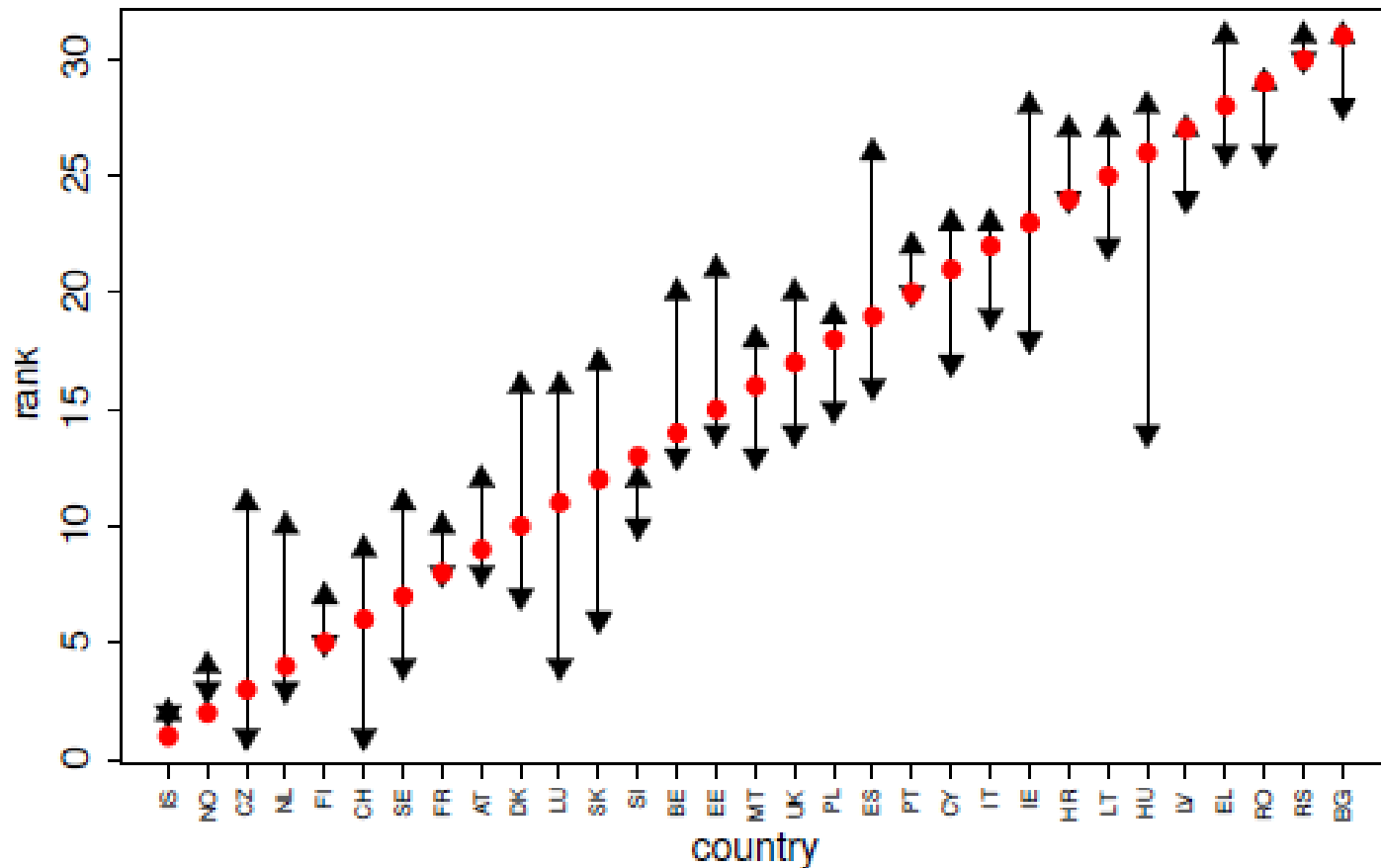3. Very low job intensity

Results (1) - ranking

Figure 1: Changes in ranks as a result of alternative weighting scheme

Table 1: Dominance table (based on 2004 EU-SILC data)

AT	BE	DK	EE	EL	ES	FI	FR	IE	IS	IT	LU	NO	PT	SE
AT		AT	AT	AT		AT	AT		AT			AT		
	DK		DK		DK		DK	DK		DK				
	FI		FI		FI		FI	FI		FI				
			FR											
IS	IS	IS	IS	IS	IS	IS	IS	IS		IS	IS	IS	IS	IS
LU	LU		LU	LU	LU		LU	LU		LU			LU	
	NO		NO		NO		NO	NO		NO				
	SE		SE				SE	SE		SE				
Countries above dominate the highlighted countries below														
AT	**BE**	**DK**	**EE**	**EL**	**ES**	**FI**	**FR**	**IE**	**IS**	**IT**	**LU**	**NO**	**PT**	**SE**
Countries below are dominated by the highlighted countres above														
									AT		AT			
BE		BE				BE			BE		BE	BE		BE
									DK					
EE		EE			EE	EE			EE		EE	EE		EE
EL									EL		EL			
ES		ES				ES			ES		ES	ES		
		FI							FI					
FR		FR				FR			FR		FR	FR		FR
IE		IE				IE			IE		IE	IE		IE
IT		IT				IT			IT		IT	IT		IT
									NO					
PT									PT		PT			
									SE					

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Results (3) – dominance years

Table 3: Example of Dominance table (Poland)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
	2006								
	2007	2007							
	2008	2008	2008						
	2009	2009	2009	2009					
	2010	2010	2010						
	2011	2011	2011			2011			
	2012	2012	2012	2012	2012	2012			
	2013	2013	2013	2013		2013		2013	
	Years above dominate the highlighted years below								
PL	2005	2006	2007	2008	2009	2010	2011	2012	2013
	Years below are dominated by the highlighted years above								
		2005	2005	2005	2005	2005	2005	2005	2005
		2006	2006	2006	2006	2006	2006	2006	2006
			2007	2007	2007	2007	2007	2007	2007
				2008				2008	2008
								2009	
							2010	2010	2010
									2012

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Results (4) – maximum weights change

If $c_n > k$, a person is considered poor.

c_n depends on w_d

δ equals the max deviation from equal weight, i.e. w_d=1/3

Pattern 1
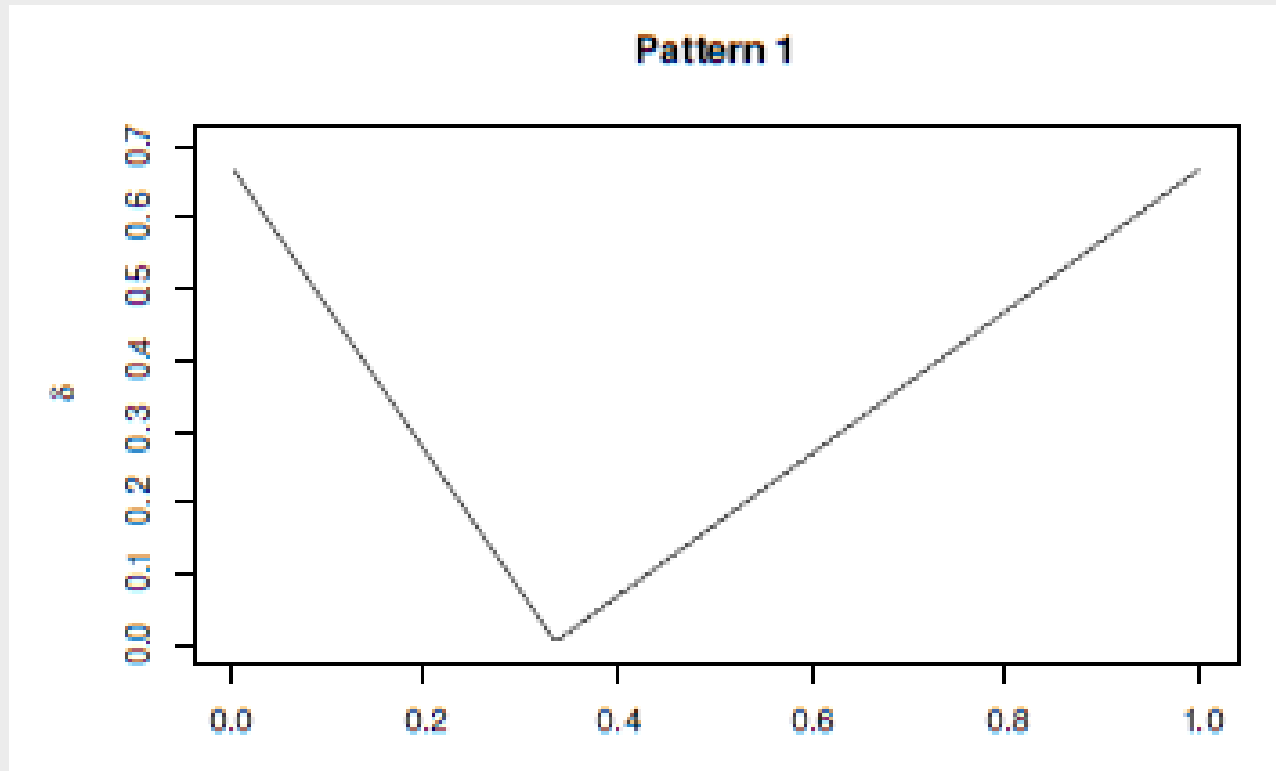
My comments

Interesting paper! This work shows that parameters can have a large influence on results.

Wouldn't the adjusted disposable income (incl STiK), be better, especially in cross-country comparison?

Is it multi-dimensional when there is a strong correlation between the dimensions?

What are the implications of the different patterns for poverty analysis?

When we consider poverty, what do we want to know? Relative ranking versus other countries or absolute figures?