Exploring differences in national and international poverty estimates: Is Uganda on track to halve poverty by 2015?

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Ten years of 'war against poverty'
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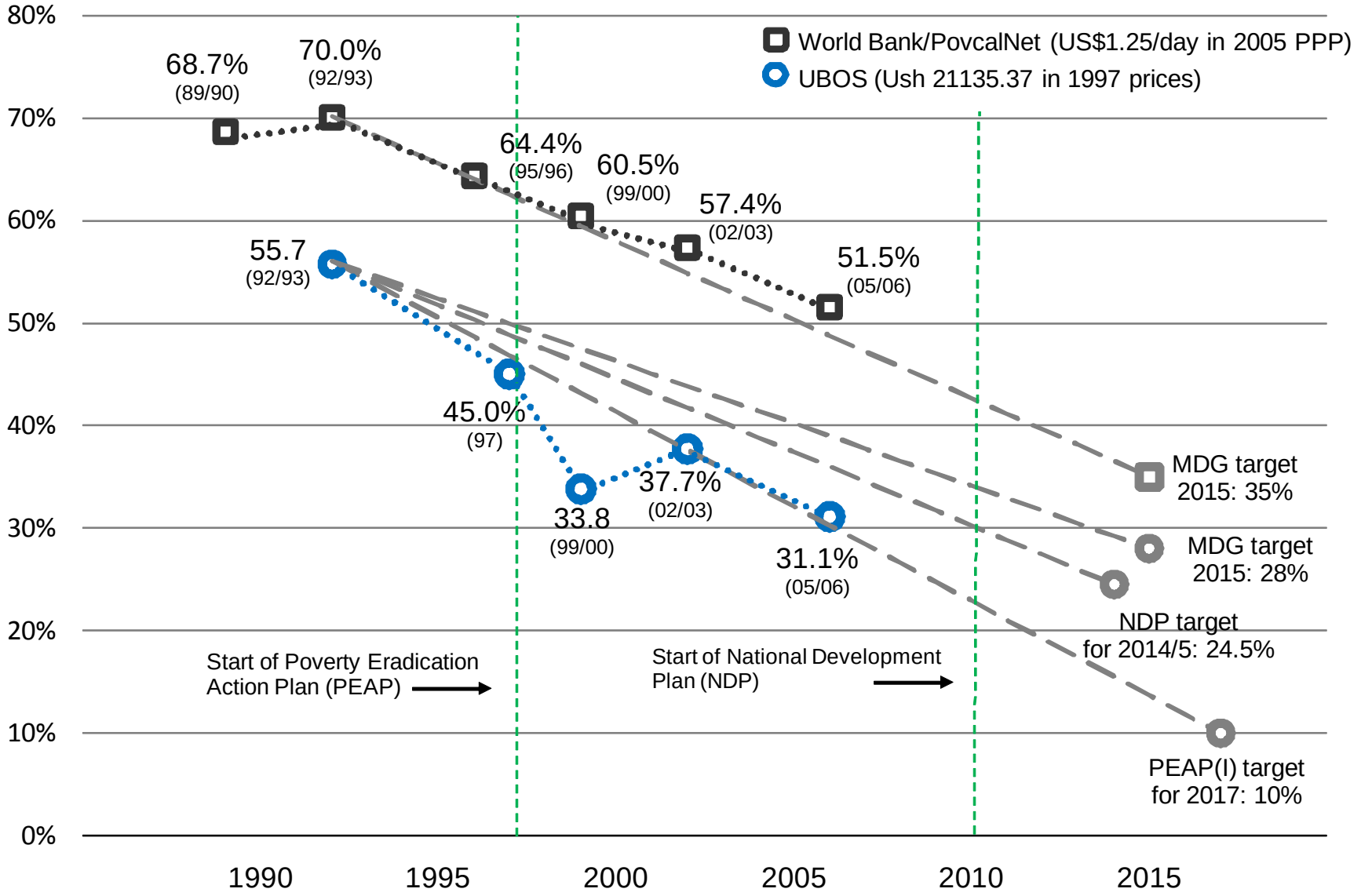
Figure 1: Trends and targets of poverty incidence in Uganda



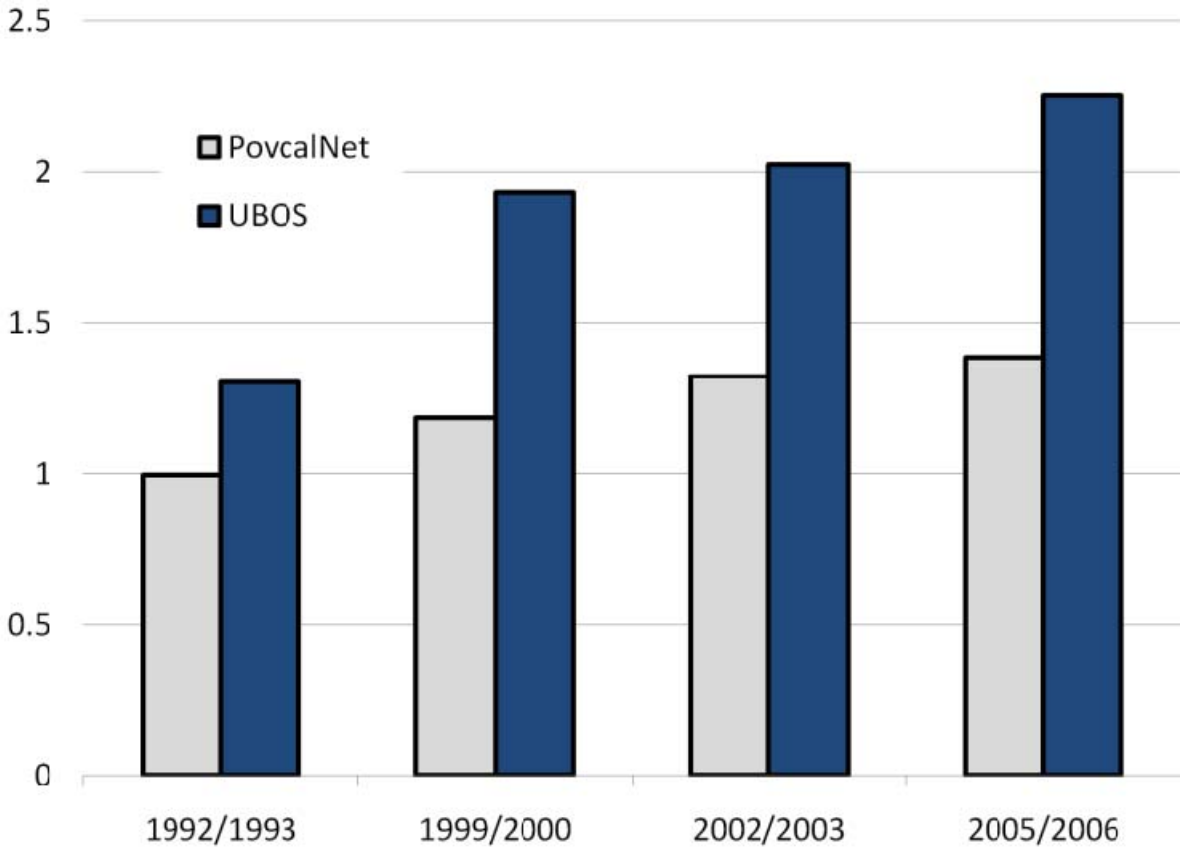
Source: UBOS (2006), Ministry of Finance, Planning and Economic Development (2004), UN (2007) and PovcalNet (Accessed June 2010).

Differences in poverty estimates

$$\Delta P = P_A - P_B = P_A(\mu_A; z_A; L_A) - P_B(\mu_B; z_B; L_B)$$

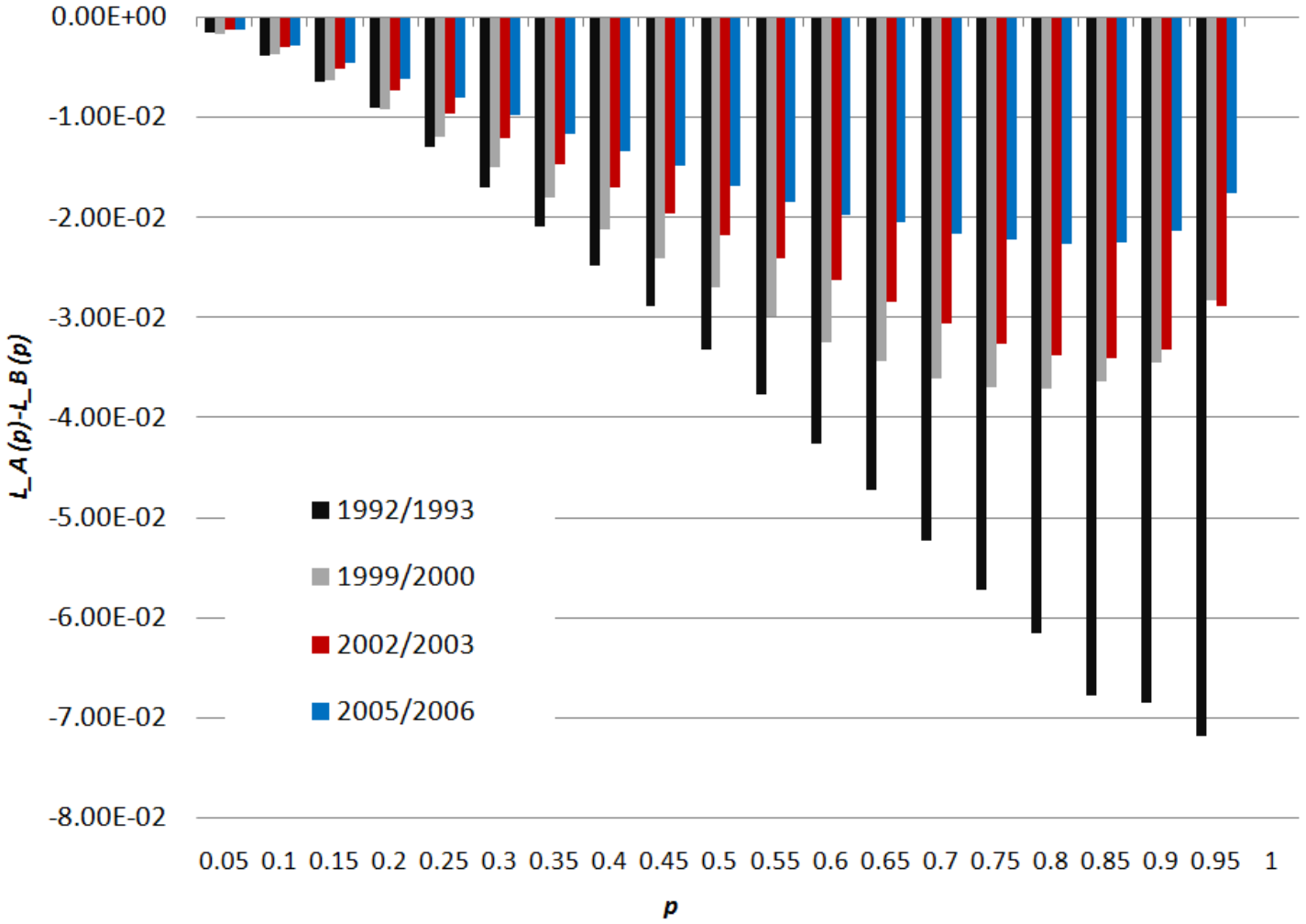
P = *Poverty estimate*
μ = *Mean welfare*
L = *Lorenz curve*
z = *Poverty line*
A = *PovcalNet/World Bank*
B = *MDGR/UBOS*

Figure 2: Comparison of normalised welfare measures



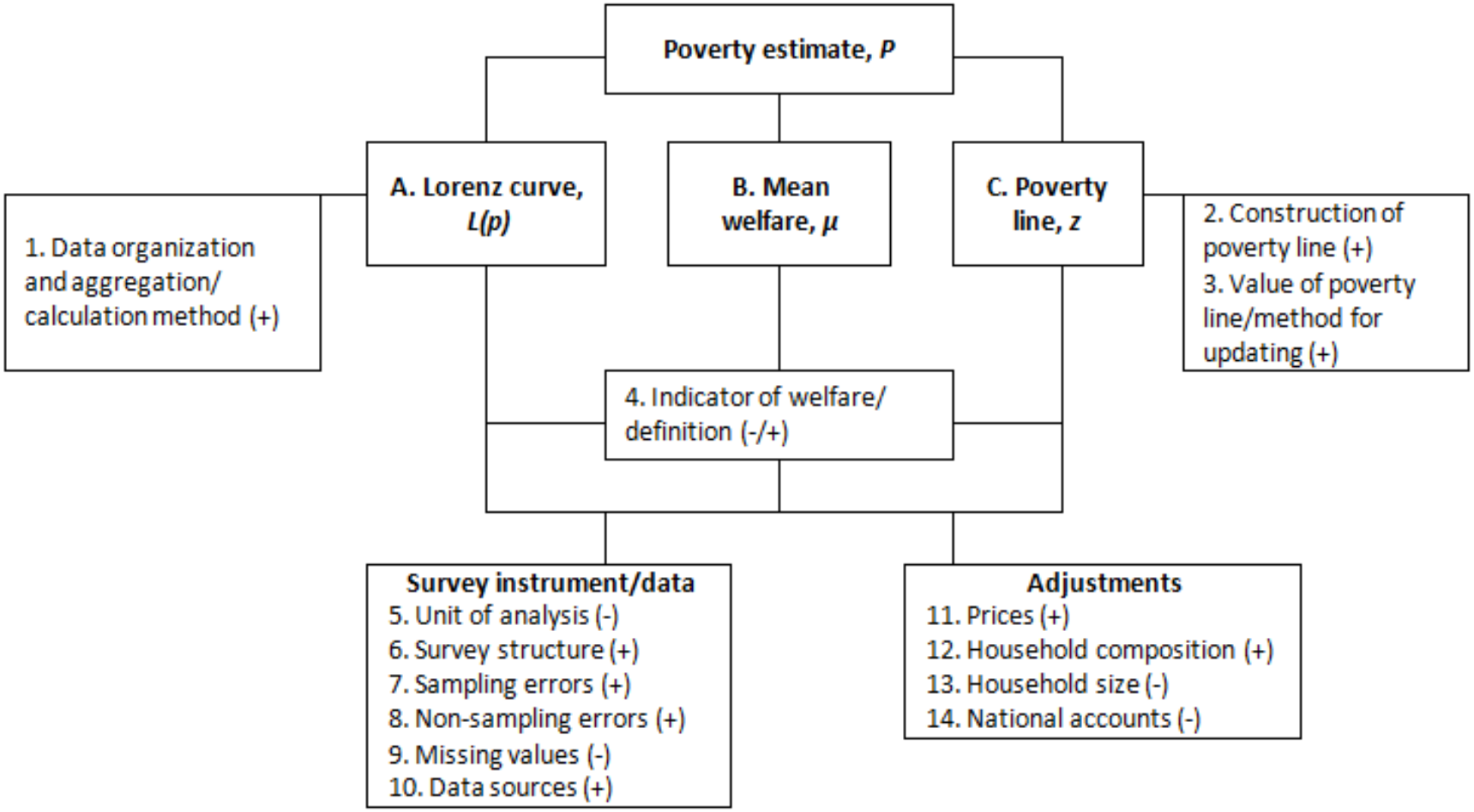
Sources: Author's calculations based on data from PovcalNet and UBOS.
Note: Welfare measures are normalised by the respective poverty lines.

Figure 3: Differences in cumulative shares of welfare by ranked quin-quintile (PovcalNet-UBOS)



Sources: Author's calculations based on data from PovcalNet and UBOS.

Figure 4: Diagnostics of differences in poverty estimates



Notes: Proximate causes of divergent poverty estimates are numbered alphabetically and underlying causes are numbered numerically. An underlying cause that is likely to impact the comparison of estimates on poverty in Uganda is indicated with (+). Causes that may be important in other types of comparisons are indicated with (-).

Causes that can be eliminated

4. Indicator of welfare (consumption expenditure)
5. Unit of analysis (individual)
9. Missing values (not important)
13. Adjustment for household size (not done)
14. Adjustment using National Accounts (not done)

Causes where effect can be determined

1. Data organisation
2. Construction of the poverty line
3. Value of the poverty line
12. Adjustments for household composition

Table 3: Poverty and inequality measures from unit and grouped data

				FGT poverty measures:					
	Fractiles	Best fit Lorenz-curve	Mean (USh)	α=0	α =1	α=2	Watts	Gini	MLD
1992/1993									
Grouped data	5	Beta	23861.58	56.2	20.9	10.3	30.1	35.8	22.2
	10	Beta	23861.58	56.2	20.9	10.3	30.1	35.8	22.1
	20	Beta	23861.58	56.1	20.9	10.3	30.0	35.7	22.0
Unit data	N=9923		23862.48	56.4	20.9	10.3	30.0	35.7	21.6
			(22932.71-24792.25)	*(54.2-58.6)*	*(19.7-22.1)*	*(9.6-11.1)*	*(28.4-32.6)*	*(34.2-37.3)*	*(19.7-23.4)*
2005/2006									
Grouped data	5	Beta	39472.85	31.1	8.8	3.5	11.3	40.2	27.5
	10	Beta	39472.85	31.2	8.9	3.6	11.4	40.1	27.3
	20	GQ	39472.85	31.4	8.9	3.3	11.7	39.9	26.6
Unit data	N=7421		39469.73	31.1	8.8	3.5	11.5	39.9	26.4
			(37743.8-41195.65)	*(29.2-33.0)*	*(8.1-9.4)*	*(3.2-3.9)*	*(10.7-12.3)*	*(38.4-41.4)*	*(24.4-28.4)*

Notes: GQ = General Quadratic Lorenz-curve, Beta = Beta Lorenz-curve. MLD = Mean Log Deviation. Poverty line = USh 21135.17. Means are in 1997 prices. Figures in brackets represent 95% confidence intervals estimated on the unit data using Stata's *svy* command and the survey sampling structure.
Source: Author's computations based on UBOS data for the full sample surveyed.

Table 7: Regional and national poverty lines

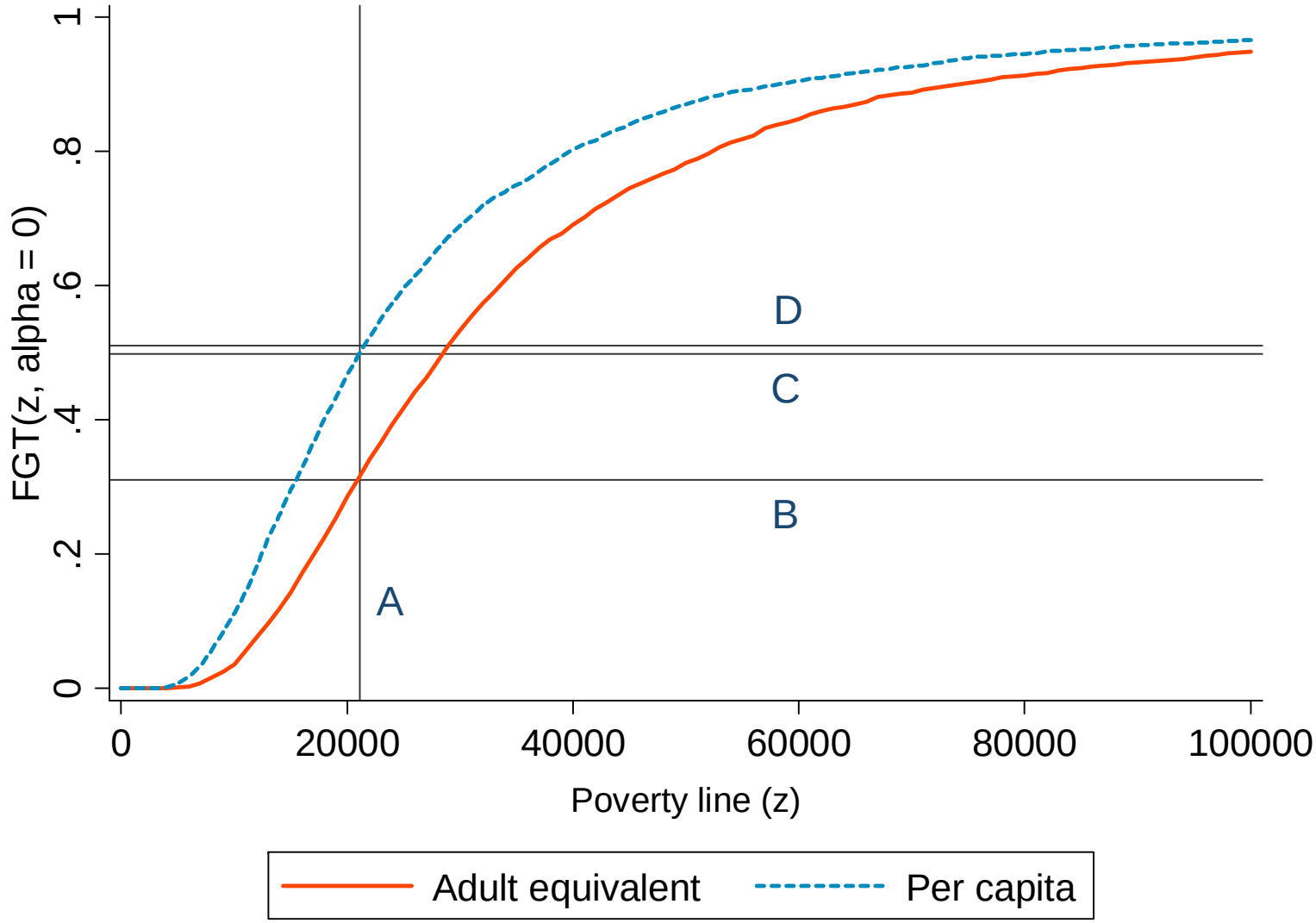
	Whole sample			
	1992/93	1999/00	2002/03	2005/06
Regional poverty lines	56.4% (54.2%-58.6%)	33.8% (31.6%-36.0%)	38.8% (36.8%-40.8%)	31.1% (29.2%-33.0%)
National poverty Line	57.4% (55.2%-59.6%)	34.8% (32.6%-37.0%)	39.6% (37.5%-41.6%)	31.5% (29.5%-33.5%)

Table 5: Comparing the real values of the poverty lines

	$z_{us\$,icp\ base\ year}$		$PPP_{us\$,icp\ base\ year}$	$\left[\frac{\pi_t}{\pi_{icp\ base\ year}}\right]$		$z_{ush,t}$	
Conversion from US$ PPP to local currency						Day	Month
2005	1.25		745	1.000		931	28,310
1997	1.25	⇨	745	0.745		694	21,091
1993	1.25		745	0.545		508	15,429
Conversion from local currency to US$ PPP							
1997	1.25		745	0.745	⇦	695	21,135
1993	1.33		745	0.545		541	16,443

Sources: Authors calculations based on data from PovcalNet, Appleton (1999) and EPRC.

Figure 5: FGT curves for 2005/2006



Source: Author's computations based on UBOS data.

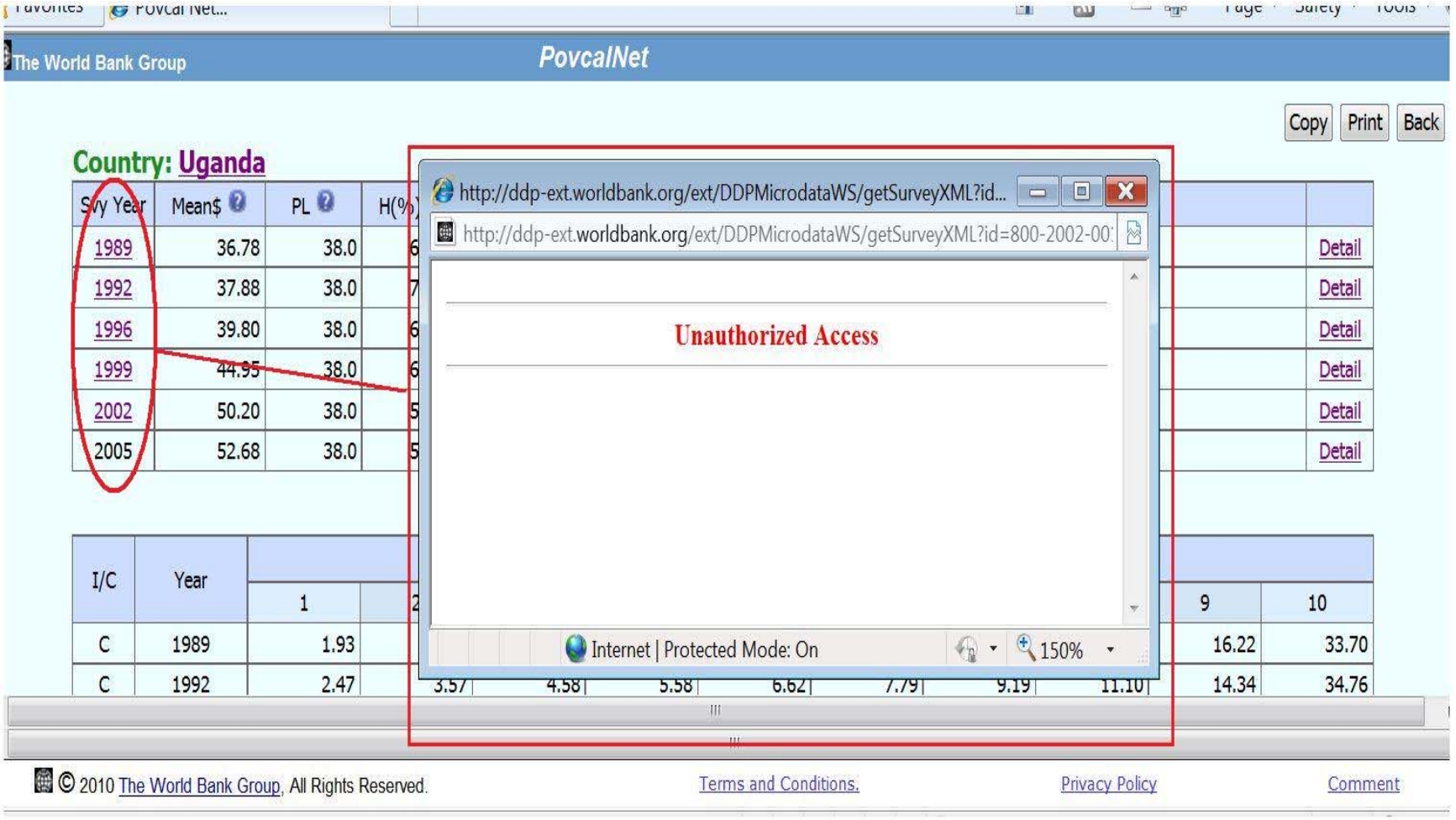
Causes where effect cannot be determined (but guesstimates are ok!)

6. Survey structure
7. Sampling errors
8. Non-sampling errors
9. Data sources
11. Price adjustments

Examples of limited/diverging information in PovcalNet

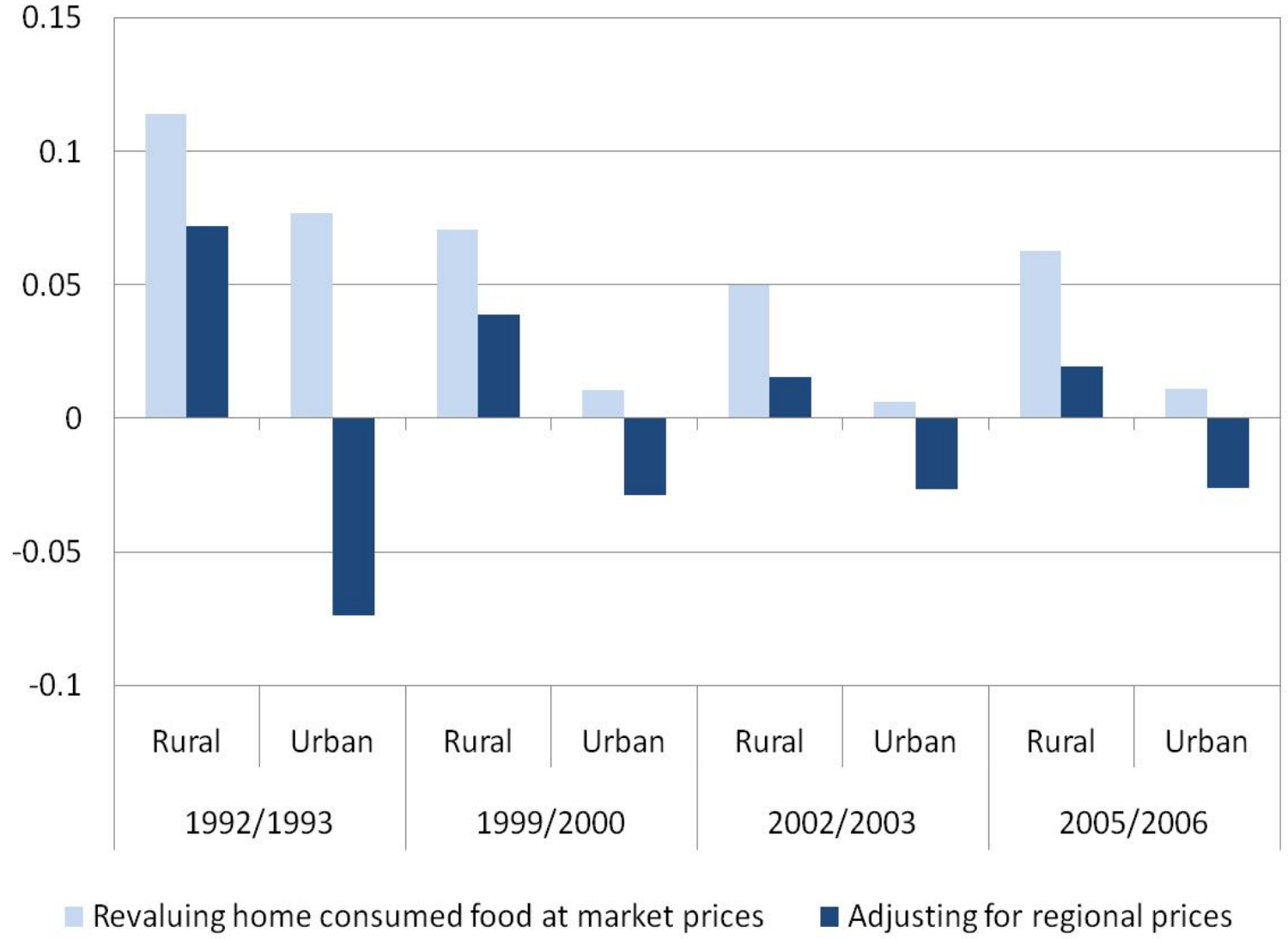
- Large variation in reported values of μ and PPP values (and no references or computations)
- No information on CPI values
- Inconsistent reference to survey sample sizes
- Includes 1989 survey (= “good quality”?); refers to National Integrated Household Survey of 1996
- Certain sections in meta data missing (“Documentation”) or n/a (“Details of consumption and/ income aggregates”)
- Users not “authorised” to access metadata on individual surveys

Figure 6: Access to survey information in PovcalNet



Source: PovcalNet online version accessed June 2010..

Figure 7: Adjustments to “official figures “



Source: UBOS (2003, 2006); Appleton (1999).

Table 6: Difference in poverty estimates

	1992/1993	1999/2000	2002/2003	2005/2006
a. MDGR/UBOS estimates	0.557	0.338	0.388	0.311
b. Full sample	0.564	0.338	0.388	0.311
c. National poverty line	0.574	0.348	0.396	0.315
d. Lower value of poverty line	0.530	0.303	0.350	0.278
e. Per capita	0.739	0.547	0.589	0.499
f. Price adjustments	0.658	0.405	0.424	0.352
g. All changes (b-f)	0.781	0.575	0.589	0.508
h. All changes + unweighted	0.722 (0.711-0.732)	0.544 (0.533-0.555)	0.517 (0.505-0.528)	0.508 (0.495-0.521)
i. PovcalNet/World Bank	0.700	0.605	0.574	0.515
j. Difference with UBOS (i-a)	0.143	0.267	0.186	0.204
k. Difference explained (h-a) using closest in range for h	0.147	0.217	0.140	0.204
l. Difference explained as share of total difference (k/j)	103%	81%	75%	100%

Source: Author's computations based on UBOS data.

Conclusion

- Yes, Uganda is on track!
- Comparing national and international estimates is not straightforward; but results should not “stand alone”.
- Several features play a role—but especially Per capita measure used in PovcalNet—in overestimating poverty levels.
- More and better meta-data for both national and international agencies; WB to provide full “authorisation” to users, UBOS to capture (and simplify) adjustments.
- Closer and coordinated collaboration between statistical agencies; harmonisation of methods and survey cycles.