

WORLD BANK



December 2014

Social Safety Nets Core Course - Using Household Surveys for Poverty & Vulnerability Analysis Brooks Evans

## Agenda

- Overview of using ADePT for SPL and Poverty Analysis (30 minutes)
- Groups work conduct analysis and prepare presentation (30 minutes)
- Group presentations & discussion (30 minutes)
- Closing and solution to poverty in country (5 minutes)





## Why poverty analysis?

- Understand the <u>characteristics of the poor and</u> <u>non-poor</u>
- Examine inequality of income/ expenditure
- Assess <u>poverty change</u> over time and by subgroups
  - Eg women, education, employment, age
- Estimate <u>vulnerability to poverty</u>
- Inform SPL program and policy design

### Basic idea

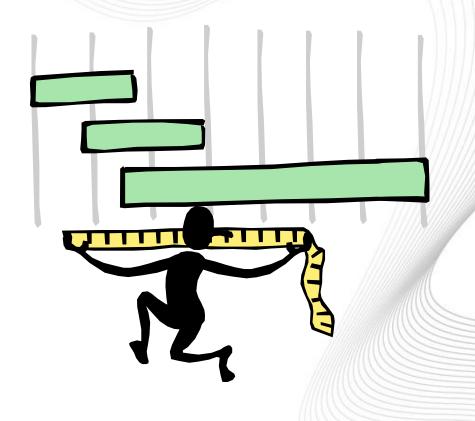


- Policymakers would like to <u>track progress</u> is poverty declining over time/how does this compared with other countries?
- Data from surveys, unlike administrative data, allows for <u>analysis by sub-groups</u>
- From analysis can <u>adjust programs and</u> <u>policies</u>, based on evidence-based findings





# Let's get measuring!



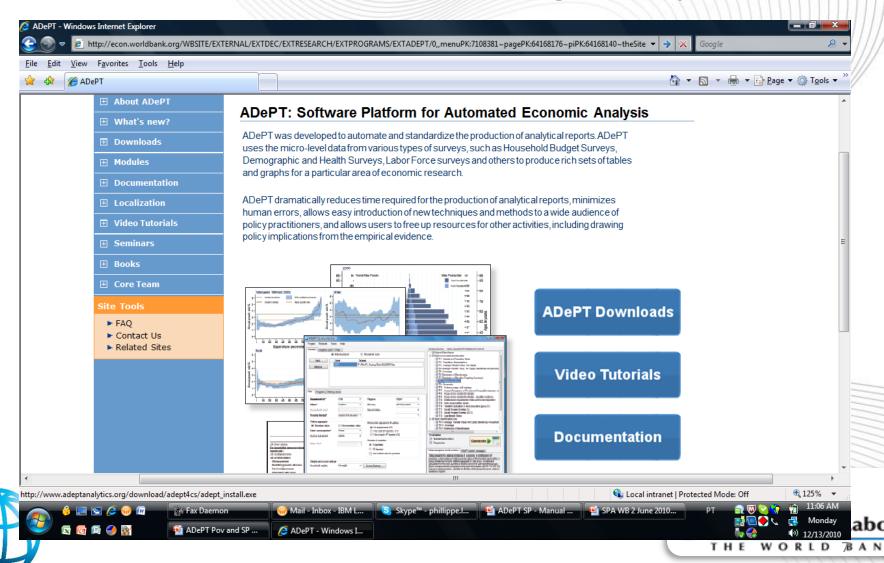




## Why ADePT?

- ADePT stands for <u>Automated <u>DEC Poverty Tables</u>. ADePT is a product of the Development Research Group (DECRG).
  </u>
- ADePT largely automates the production of standardized tables and charts
- User requires knowledge of statistical packages -e.g. Stata and SPSS – to prepare the dataset. Construction of key variables is not trivial but a statistician can do it. Then
  - ADePT saves time for users because user do not need to write commands and code to produce the tables and charts.
- ADePT runs without Stata on the user's computer!
- ADePT minimizes human errors in programming—even skilled Stata users make mistakes!
- ADePT ensures comparability of results across countries/years, in a standardized format – we're comparing apples with apples
- ADePT frees up resources for data-preparation, interpretation of results, and thinking about policy implications

# Free download of ADePT: www.worldbank.org/adept





User micro-level data: DHS, LSMS, LFS, ...

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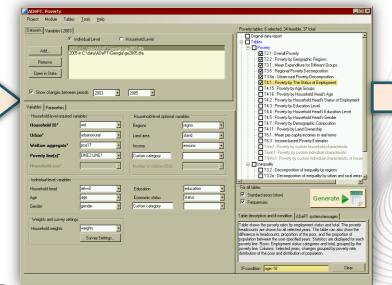




## Why ADePT?

User micro-level data: DHS, LSMS, LFS, ...

#### **ADePT**



#### **Inside ADePT**

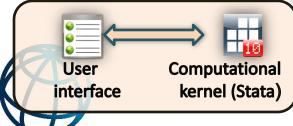
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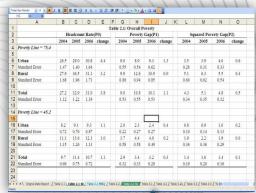
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#### **Print-ready output**





## Some practical uses of ADePT

- Quickly understand <u>poverty characteristics of</u> <u>population</u> (e.g by age, education level, region)
- Determine poverty rate, depth, and severity
- Measure the <u>distribution of income/</u> <u>expenditure/ inequality</u> by sub-groups
- Produce <u>evidence- based</u> findings for tracking progress, preparing <u>reports</u>, informing programs



### What ADePT does

- ADePT uses the living standards variable to rank individuals and create population quintiles (using household weights)
- Produce a number of standardized tables to examine how poverty and inequality measures for population and sub-groups
- Allows for assessing how differing methodologies (eg poverty line, equivalence scales) affect poverty measures
- Starting point for ADePT SP



### What ADePT asks for

### Main source of information:

- Representative Household Surveys (HBS, LFS, LSMS)
   Key Variables:
- Living standards measure continuous variable (e.g. Consumption, expenditure, income, asset index or score)
- Poverty line (s) if income or consumption
- Weights and survey settings relate to sample design information (sampling weight, cluster, strata)
- Household ID

Location of the household (Urban or Rural)

# Let's see ADePT in action!





## First step preparation of input data

- Main source of information: Existing Household Surveys
- Key Variables:
  - Household identification
  - Location of the household (Urban or Rural)
  - The welfare level of the households, typically expressed as a per capita or per adult equivalent consumption or income;
  - Poverty line (s)
  - Expansion factor (individual or household)
    - Sample frame design





### Individual Input File

															1.1.1.1.1.1.1.1
Household Identification	Individual Identification	STRATA	PSU	Urban location =1; Rural location=2	Household expansion factor	Household Size	Adult equivalent scale	Head of the household	Age of the household member	Total household income	Poverty line	Amount received from old age pensions	Participation in scholarship programs	Amount received by the household from Oportunidades	Amount received by the household from Pro-Campo
id_hh	id_ind	strata	psu	urban	hhweight	hhsize	adul_eq	head	age	hh_income	pob_ing	apos	becas_	toport	tprocam
20060150282	1	1	2	2	305	3	2	1	18	2459.34	938.61		0	180.49	
20060150282	2	1	2	2	305	3	2	0	18	2459.34	938.61		0	180.49	
20060150282	3	1	2	2	305	3	2	0	1	2459.34	938.61		0	180.49	
20060150280	1	1	2	2	305	7	6	1	56	9094.69	938.61		////0////		334.24
20060150280	2	1	2	2	305	7	6	0	53	9094.69	938.61		0		334.24
20060150280	3	1	2	2	305	7	6	0	29	9094.69	938.61		0		334.24
20060150280	4	1	2	2	305	7	6	0	26	9094.69	938.61		0		334.24
20060150280	5	1	2	2	305	7	6	0	15	9094.69	938.61		0		334.24
20060150280	6	1	2	2	305	7	6	0	13	9094.69	938.61		0		334.24
20060150280	7	1	2	2	305	7	6	0	7	9094.69	938.61		1		334.24
20060150030	1	1	1	1	777	4	3	1	77	18183.37	938.61	1403.81	0		
20060150030	2	1	1	1	777	4	3	0	51	18183.37	938.61		0		
20060150030	3	1	1	1	777	4	3	0	43	18183.37	938.61		0		
20060150030	4	1	1	1	777	4	3	0	9	18183.37	938.61		0		
20060150040	1	1	1	1	777	1	1	1	92	4458.78	938.61	1604.35	0		
20060150050	1	1	1	1	777	2	2	1	83	6397.05	938.61	1640.45	0		
20060150050	2	1	1	1	777	2	2	0	39	6397.05	938.61		0		
20060150060	1	1	1	1	859	5	2	1	41	12988.27	938.61	1	0		
20060150060	2	1	1	1	859	5	2	0	32	12988.27	938.61		0		
20060150060	3	1	1	1	859	5	2	0	11	12988.27	938.61		0		
20060140410	1	1	7	1	638	10	6	1	56	10730.62	938.61		0	514.18	
20060140410	2	1	7	1	638	10	6	0	58	10730.62	938.61		0	514.18	
20060140410	3	1	7	1	638	10	6	0	86	10730.62	938.61	1411.48	0	514.18	
20060140410	4	1	7	1	638	10	6	0	30	10730.62	938.61		0	514.18	
20060140410	5	1	7	1	638	10	6	0	29	10730.62	938.61		0	514.18	
20060140410	6	1	7	1	638	10	6	0	10	10730.62	938.61		0	514.18	
20060140410	7	1	7	1	638	10	6	0	9	10730.62	938.61		0	514.18	
20060140410	8	1	7	1	638	10	6	0	4	10730 62	938 61		0	514 18	





### Household Input File

Household Identification	Individual Identification	STRATA	PSU	Urban location =1; Rural location=2	Household expansion factor	Household Size	Adult equivalent scale	Head of the household	Age of the household member	Total household income	Poverty line	Amount received from old age pensions	Participation in scholarship programs	Amount received by the household from Oportunidades	Amount received by the household from Pro-Campo
id_hh	id_ind	strata	psu	urban	hhweight	hhsize	adul_eq	head	age	hh_income	pob_ing	apos	becas_	toport	tprocam
20060150282	1	1	2	2	305	3	2	1	18	2459.34	938.61		0	180.49	
20060150280	1	1	2	2	305	7	6	1	56	9094.69	938.61		1		334.24
20060150030	1	1	1	1	777	4	3	1	77	18183.37	938.61	1403.81	0		
20060150040	1	1	1	1	777	1	1	1	92	4458.78	938.61	1604.35	0		
20060150050	1	1	1	1	777	2	2	1	83	6397.05	938.61	1640.45	0		
20060150060	1	1	1	1	859	5	2	1	41	12988.27	938.61	//	0		
20060140410	1	1	7	1	638	10	6	1	56	10730.62	938.61	1411.48	0	514.18	





### Remember:

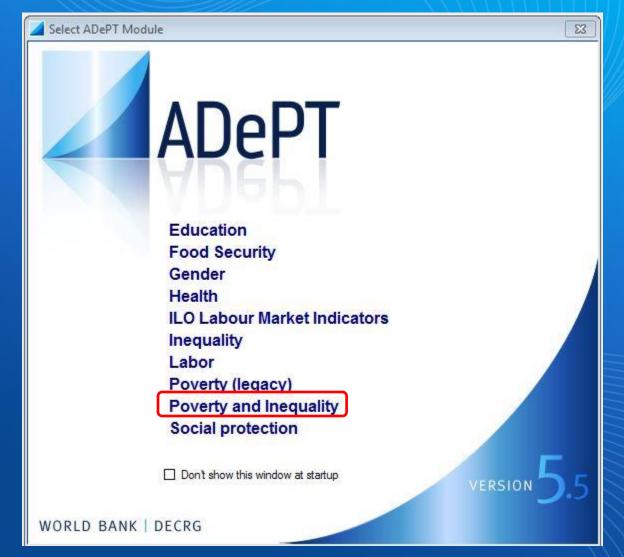
# •GIGO principle:

Garbage In Garbage Out

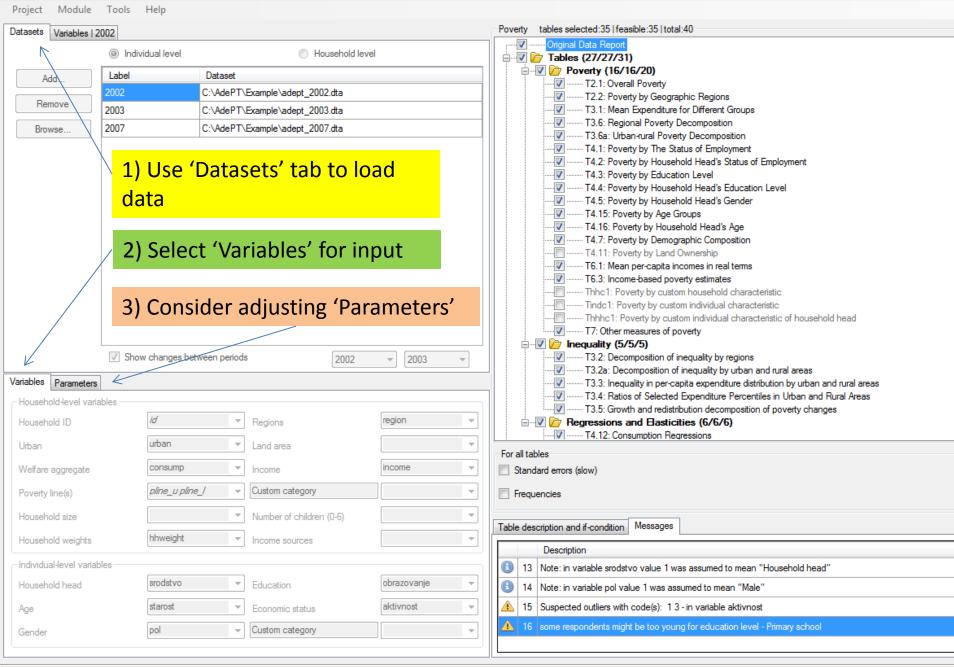




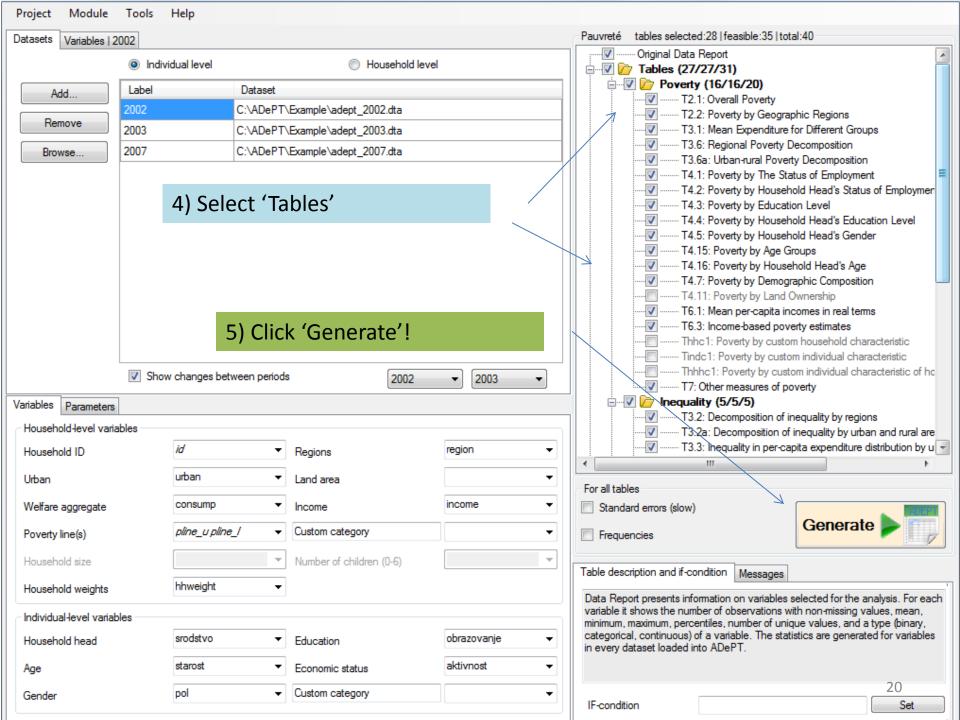
# Software Platform for Automated Economic Analysis







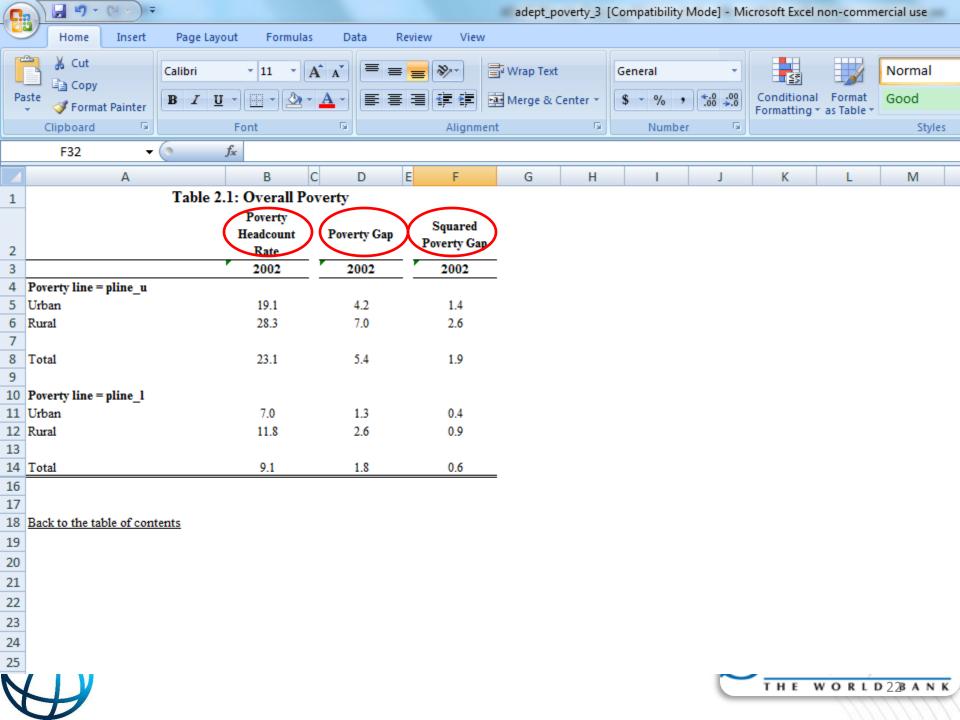
poverty - ADePT: Poverty



#### ADePT Poverty: Table of Contents

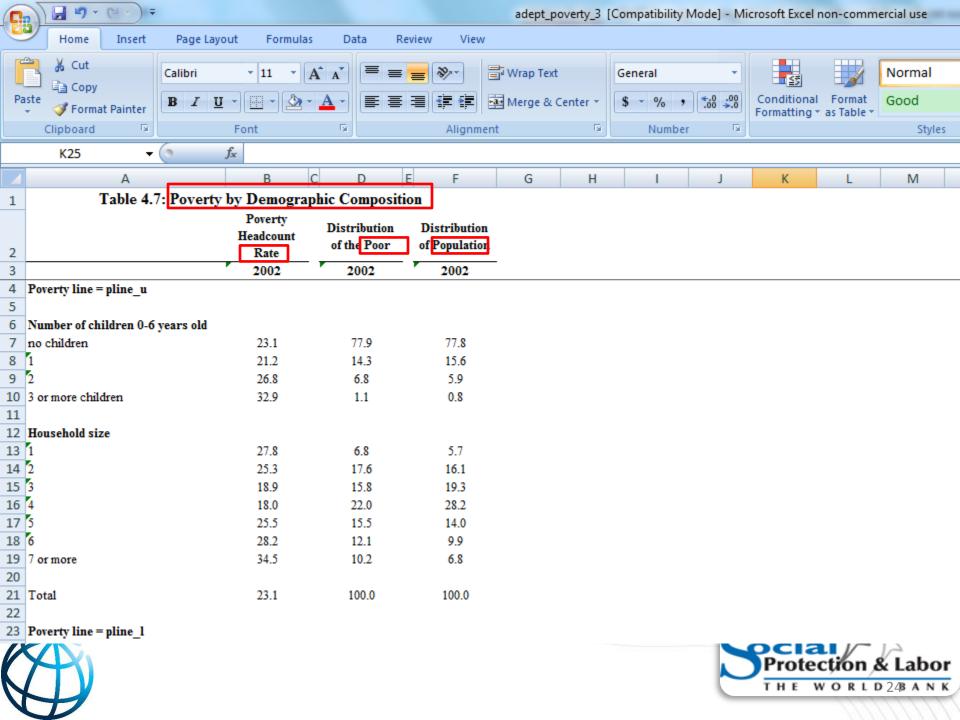
		CPU time
Notifications	Errors, Warnings and Notifications generated by data checking process	
Original Data	Original Data Report	1.54
Report	Ongman Data Report	1.34
Table 2.1	Table 2.1: Overall Poverty	3.07
Table 2.2	Table 2.2: Poverty by Geographic Regions	12.84
Table 3.1	Table 3.1: Mean Expenditure for Different Groups	1.36
Table 3.6	Table 3.6: Regional Poverty Decomposition	1.28
Table 3.6a	Table 3.6a: Urban-rural Poverty Decomposition	0.97
Table 4.1	Table 4.1: Poverty by The Status of Employment	7.19
Table 4.2	Table 4.2: Poverty by Household Head's Status of Employment	6.57
Table 4.3	Table 4.3: Poverty by Education Level	9.00
Table 4.4	Table 4.4: Poverty by Household Head's Education Level	6.91
Table 4.5	Table 4.5: Poverty by Household Head's Gender	5.83
Table 4.15	Table 4.15: Poverty by Age Groups	8.28
Table 4.16	Table 4.16: Poverty by Household Head's Age	7.08
Table 4.7	Table 4.7: Poverty by Demographic Composition	10.19
Table 6.1	Table 6.1: Mean per-capita incomes in real terms	1.23
Table 6.3	Table 6.3: Income-based poverty estimates	10.51
Table 7	Table 7: Other measures of poverty	11.53
Table 3.2	Table 3.2: Decomposition of inequality by regions	3.18
Table 3.2a	Table 3.2a: Decomposition of inequality by urban and rural areas	4.68
Table 3.3	Table 3.3: Inequality in per-capita expenditure distribution by urban and rural areas	5.90
Table 3.4	Table 3.4: Ratios of Selected Expenditure Percentiles in Urban and Rural Areas	0.51
Table 3.5	Table 3.5: Growth and redistribution decomposition of poverty changes	2.46
Table 4.12	Table 4.12: Consumption Regressions	4.38
Table 4.13	Table 4.13: Changes in the probability of being in poverty (percent)	10.58
Table 4.14	Table 4.14: Probability of being poor	14.16
T. 1. 5.	Table 5.1: Sensitivity of Headcount Poverty Rate with Respect to the Choice of Poverty	571
Table 5.1	<u>Line</u>	5.74
Table 5.2	Table 5.2: Elasticity of Poverty with Respect to the Consumption	9.41
Table 5.3	Table 5.3: Elasticity of Poverty with Respect to the Inequality	18.06
Figure 2.1	Figure 2.1: Growth-incidence curve	69.28
Figure 5.1	Figure 5.1: Poverty Incidence Curve	13.39
Figure 5.2	Figure 5.2: Poverty Deficit Curve	14.94
Figure 5.3	Figure 5.3: Poverty Severity Curve	15.54
Figure 5.4	Figure 5.4: Probability Density Function	26.60
Figure 5.5	Figure 5.5: Lorenz Curve	21.89
Figure 5.6	Figure 5.6: Age-Gender Pyramid and Poverty	17.86
Total time (secon	nds)	363.97

Contents Notifications Original Data Report Table 2.1 Table 2.2 Table 3.1 Table 3.6 Table 3.6 Table 4.1 Table 1.1



### Table 2.2: Poverty by Geographic Regions

	Poverty Headcount Rate	Distribution of the Poor	Distribution of Population		
	2002	2002	2002		
Poverty line = pline u					
Urban	19.1	46.7	56.4		
Rural	28.3	53.3	43.6		
Region					
Belgrade	17.7	16.1	21.1		
Vojvođina	20.9	24.6	27.1		
Western Serbia	27.8	13.5	11.2		
Šumadija and Pomoravlje	22.9	17.1	17.3		
Eastern Serbia	20.9	8.4	9.3		
Southeastern Serbia	33.5	20.3	14.0		
Total	23.1	100.0	100.0		



# Poverty by Status of Employment

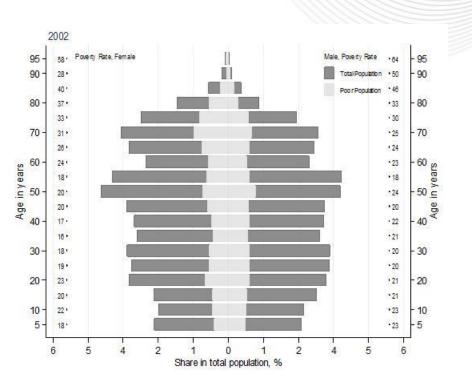
	_	[				:	_	111111111111111111111111111111111111111	EFFERERAL	11111111
		rty Headcoun				n of the Poor		Distribution of Population		
	2002	2003	Change	2002	2003	2007	Change	2002	2003	Change
Poverty line = pline_u										
activity										
Employed	17.2	10.8	-6.3	26.5	28.7	28.0	2.3	35.6	36.2	0.6
Unemployed	32.7	17.2	-15.5	14.2	11.6	13.9	-2.6	10.0	9.2	-0.8
Inactive	25.2	14.9	-10.3	59.3	59.6	58.2	0.3	54.3	54.6	0.2
Total	23.1	13.7	-9.5	100.0	100.0	100.0	0.0	100.0	100.0	0.0
Poverty line = pline_l										
activity										
Employed	5.6	5.3	-0.3	21.9	27.8	27.2	5.9	35.6	36.2	0.6
Unemployed	14.6	9.1	-5.5	16.2	12.1	15.2	-4.1	10.0	9.2	-0.8
Inactive	10.4	7.6	-2.7	62.0	60.1	57.6	-1.9	54.3	54.6	0.2
Total	9.1	6.9	-2.2	100.0	100.0	100.0	0.0	100.0	100.0	0.0

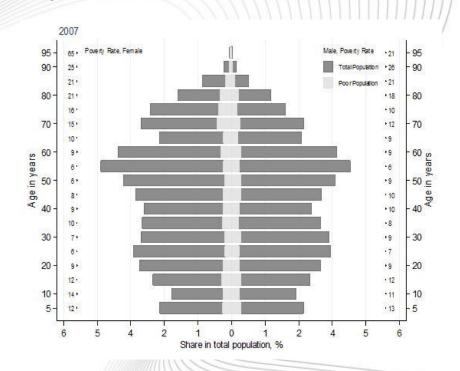
Note: Changes shown between years 2002 and 2003





# Has poverty changed over time, and in what ways?





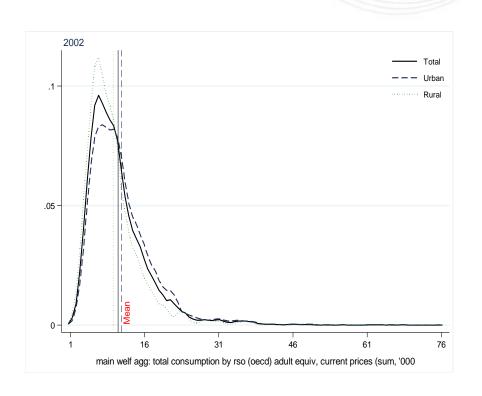
#### Example:

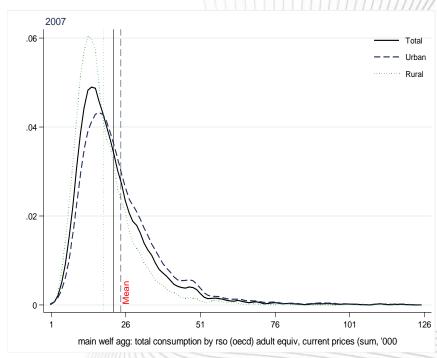
- How has the poverty rate changed between 2002 and 2007?
- Would you allocation of resources/ programs be same/different?





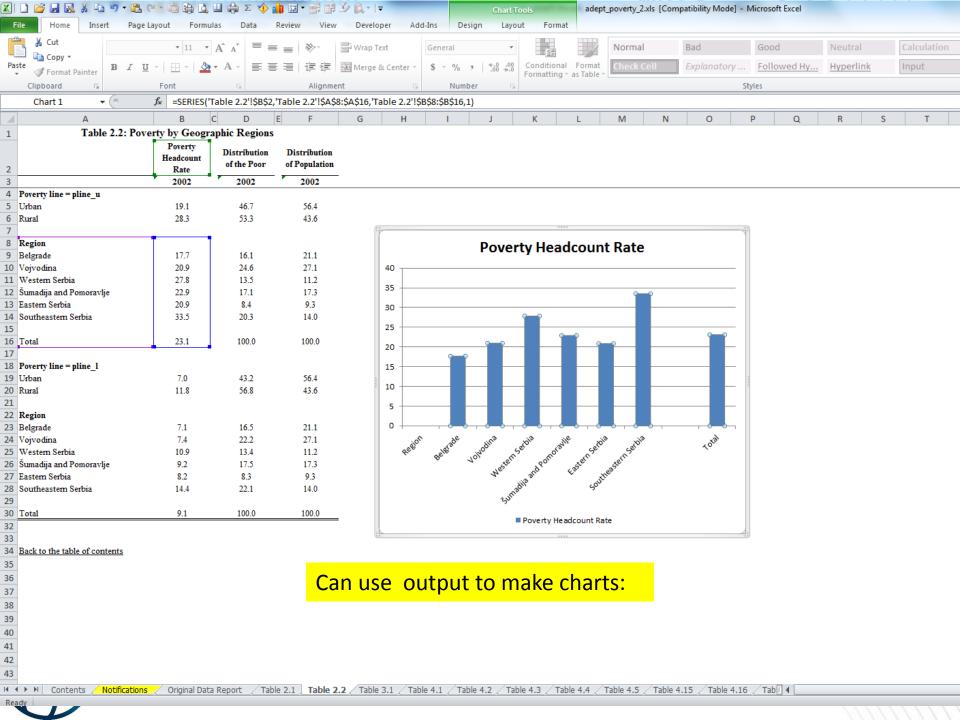
# **Probability Density Function**











# Advanced settings

- Custom variables
- Custom tables
- Creating variables





# **Group Exercise**





### Exercise

- Form groups of 3-4 people
- Working with Serbia 2003, and 2007 datasets, each group will chose a topic to solve using ADePT
- Will present as a group, and other teams will provide constructive feedback





# Sample format of presentations

- 1 slide on <u>problem/ question</u> (each team chooses 1)
- 1-2 slides on <u>analysis and findings</u>
- 1 slide on policy implications/discussion

Welcome to use charts





# Possible topics

- 1) What are the <u>characteristics of total population</u>, poor and sub-groups (eg age)?
- 2) How has poverty changed over time?
- 3) What factors appear to be related to being poor and non-poor? How may this influence the design of programs?
- <u>4) Other topic</u> on relationship to poverty/policy implications: eg Education, employment, region, hhsize, gender, choice of poverty line





# Quick feedback from group

 Why do you agree or disagree with the groups' findings and policy suggestions?





# Final thoughts on session

- How did the group exercise surprise you?
- In your country, what are the <u>constraints for</u> <u>understanding poverty</u> characteristics and <u>implementing changes to anti-poverty/ SSN</u> <u>programs</u> to address these?
- Other comments/ thoughts on how could use tools for further work to improve poverty assessment, national planning, and use for country's programs?

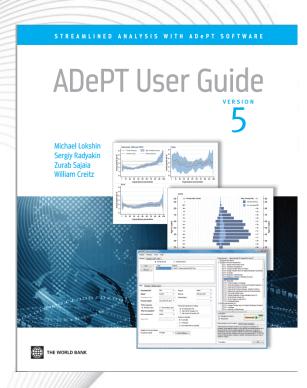




STREAMLINED ANALYSIS WITH ADEPT SOFTWARE

# Analysis of Poverty and Inequality James Foster Michael Lokehin Suman Seth

## Thank you!





- If your country office is interested in a training on Social Protection and Poverty (1/2 day to 3 day courses):
  - Please contact Mr. Ruslan Yemtsov,
     ryemstov@worldbank.org or Mr. Brooks Evansbevans2@worldbank.org



