

[illegible]

```
Single-user Stata perpetual license:
  Serial number: 301506228769
  Licensed to: Luca Tiberti
              PEP
```

Notes:

1. Unicode is supported; see [help unicode_advice](#) .

```
running c:\ado\personal\profile.do ...
```

```
. doedit "C:\Users\lutib\Dropbox\PEP_distance_Poverty Course (Exercises)\2019\weeks_sem
> aines 10-11\versions\BLOC4_COPY1.do"
```

```
. do "C:\Users\lutib\AppData\Local\Temp\STD1f60_000000.tmp"
```

```
.  
. // EXERCICE 1  
.   
. // Q1  
.   
. clear
```

```
. input w_1 w_2 w_3
```

```

w_1      w_2      w_3
1.  1  5  3
2.  2  3  0
3.  4  4  6
4.  3  3  4
5.  7  5  4
6.  6  4  3
7.  end

```

```
. gen poor_union = (w_1<3.5) | (w_2<3.5) | (w_3<3.5)
```

```
. mean    poor_union
```

```
Mean estimation      Number of obs      =           6
```

	Mean	Std. Err.	[95% Conf. Interval]	
poor_union	.6666667	.2108185	.1247404	1.208593

```
. imdp_uhi w_1 w_2 w_3, pl1(3.5) pl2(3.5) pl3(3.5)
```

M.D. Poverty index : Union headcount index

	Estimate	STE	LB	UB
Population	0.667	0.211	0.242	1.091

```
. // Q2
. gen poor_inter = (w_1<3.5) & (w_2<3.5) & (w_3<3.5)
. mean poor_inter
```

Mean estimation Number of obs = 6

	Mean	Std. Err.	[95% Conf. Interval]	
poor_inter	.1666667	.1666667	-.2617636	.595097

```
. imdp_ihi w_1 w_2 w_3, pl1(3.5) pl2(3.5) pl3(3.5)
```

M.D. Poverty index : Intersection headcount index

	Estimate	STE	LB	UB
Population	0.167	0.167	-0.169	0.503

```
.
. // Q3
. /*
> The intersection headcount index is more sensitive, since we count only those with full m
> ultiple deprivation.
> */
.
. // Q4
.
. gen dep_1 = (w_1<3.5)
. gen dep_2 = (w_2<3.5)
. gen dep_3 = (w_3<3.5)
. egen sum_dep = rowtotal(dep_*)
. gen af_poor = (sum_dep>=2)
. gen w_af_poor = (sum_dep /3)* af_poor
```

```
Mean estimation      Number of obs      =           6
```

	Mean	Std. Err.	[95% Conf. Interval]	
af_poor	.5	.2236068	-.0747996	1.0748
w_af_poor	.3888889	.1808758	-.0760671	.8538449

```
.
.
. // Q5
. imdp_afi w_1 w_2 w_3, dcut(2) w1(1) p11(3.5) w2(1) p12(3.5) w3(1) p13(3.5)
```

Alkire and Foster (2007) MDP indices

Group	Pop. share	H0	M0	M1
Population	1.000	0.500	0.389	0.151
0.099				
0.067	0.000	0.224	0.181	0.087

The relative contribution of dimensions to the Alkire and Foster (2007) MDP indices estimated at population level (results in %).

Dimensions	M0	M1	M2
w_1	42.86 5.48	47.37 17.81	40.23 26.07
w_2	28.57 11.40	10.53 5.90	2.30 1.49
w_3	28.57 11.40	42.11 16.96	57.47 25.91

•
•
• // Q6
•

```

. gen poor_union_targ1 = (w_1+1<3.5) | (w_2<3.5) | (w_3<3.5)
. gen poor_union_targ2 = (w_1<3.5) | (w_2+1<3.5) | (w_3<3.5)
. gen poor_union_targ3 = (w_1<3.5) | (w_2<3.5) | (w_3+1<3.5)
.
. gen poor_inter_targ1 = (w_1+1<3.5) & (w_2<3.5) & (w_3<3.5)
. gen poor_inter_targ2 = (w_1<3.5) & (w_2+1<3.5) & (w_3<3.5)
. gen poor_inter_targ3 = (w_1<3.5) & (w_2<3.5) & (w_3+1<3.5)
.
. mean poor_union*

```

Mean estimation Number of obs = 6

	Mean	Std. Err.	[95% Conf. Interval]	
poor_union	.6666667	.2108185	.1247404	1.208593
poor_union_targ1	.6666667	.2108185	.1247404	1.208593
poor_union_targ2	.6666667	.2108185	.1247404	1.208593
poor_union_targ3	.5	.2236068	-.0747996	1.0748

```

. mean poor_inter*

```

Mean estimation Number of obs = 6

	Mean	Std. Err.	[95% Conf. Interval]	
poor_inter	.1666667	.1666667	-.2617636	.595097
poor_inter_targ1	.1666667	.1666667	-.2617636	.595097
poor_inter_targ2	0	(omitted)		
poor_inter_targ3	.1666667	.1666667	-.2617636	.595097

```

.
. /* With the union approach, we focus in less deprived individuals (the case of individua
> 1 number 6, the is only deprived in dimension 3) */
. /* With the intersection approach, we focus in we focus in most deprived individuals (th
> e case of individual number 3, and we target the dimension 2) */
.
.
. // EXERCICE 2
.
. // Q1
.

```

```

. clear

. input w_1 w_2 w_3

      w_1      w_2      w_3
1.  1  5  3
2.  2  3  0
3.  4  4  6
4.  3  3  4
5.  7  5  4
6.  6  4  3
7.  end

.
. cap drop ngap*

. gen ngap1 = (3.5-w_1)/3.5*(3.5>w_1)

. gen ngap2 = (3.5-w_2)/3.5*(3.5>w_2)

. gen ngap3 = (3.5-w_3)/3.5*(3.5>w_3)

. gen pi = ( (1/3)*ngap1^1 + (1/3)*ngap2^1 + (1/3)*ngap3^1 )^(1/1)

. if ngap1==0 & ngap2==0 & ngap3==0 replace pi=0

. qui sum pi

. scalar BC_0 = `r(mean)''

. dis  "The B&C index = " %6.3f BC_0
The B&C index = 0.159

.
.
. // Q2
. imdp_bci w_1 w_2 w_3, alpha(1) gamma(1) b1(0.3333333) p11(3.5) b2(0.3333333) p12(3.5) b3(
> 0.3333333) p13(3.5)

      M.D. Poverty index : Bourguignon and Chakravarty (2003)

```

	Estimate	STE	LB	UB
Population	0.159	0.085	-0.012	0.330

```

.
. // Q3
. gen nw_1 = (w_1+ w_2+w_3)/3

. gen nw_2 = (w_1+ w_2+w_3)/3

```

```
. gen nw_3 = (w_1+ w_2+w_3)/3

. imdp_bci nw_1 nw_2 nw_3, alpha(1) gamma(1) b1(0.3333333) p11(3.5) b2(0.3333333) p12(3.5)
> b3(0.3333333) p13(3.5)
```

M.D. Poverty index : Bourguignon and Chakravarty (2003)

	Estimate	STE	LB	UB
Population	0.119	0.084	-0.050	0.288

```
. /*
> The BC index decreases because the expenditure share of each dimension of each individua
> l (1/3)
> matches with the normative imposed expenditure shares (the parameter beta = 1/3).
> Thus, the generated utility is high and gap is low.
> */
.
. // Q4
. gen b1=w_1/(w_1+w_2+w_3)

. gen b2=w_2/(w_1+w_2+w_3)

. gen b3=w_3/(w_1+w_2+w_3)

.
. replace pi = ( b1*ngap1^1 + b2*ngap2^1 + b3*ngap3^1 )^(1/1)
(4 real changes made)

. qui sum pi

. scalar BC_0 = `r(mean)''

. dis "The B&C index = " %6.3f BC_0
The B&C index = 0.084

. /*
> The BC index decreases because now the beta parameters of each individual matches with t
> heir observed expenditure shares
> and this optimizes the utility.
> */
.
end of do-file

. do "C:\Users\lutib\AppData\Local\Temp\STD1f60_000000.tmp"

.
. // EXERCICE 3
.
. // Q1
.
end of do-file
```

```

. use "C:\Users\lutib\Dropbox\PEP_distance_Poverty Course (Exercises)\2019\weeks_semaines 1
> 0-11\versions\Canada_Incomes&Taxes_1996_2005_random_sample_1.dta", clear
(Enquete sur la dynamique du travail et du revenu, 1996: FAMILLES ECONOMIQUES (FE))

. do "C:\Users\lutib\AppData\Local\Temp\STD1f60_000000.tmp"

. preserve

. keep if year==2005
(91,617 observations deleted)

. #delimit ;
delimiter now ;
. cnpe T B N, xvar(X) hsize(hhsize) type(dnp) min(1000) max(31000)
> title(Marginal rates of taxes and benefits)
> subtitle(Canada 2005)
> xtitle(Gross income)
> ytitle(Estimated marginal rates)
> ;

. #delimit cr
delimiter now cr
. restore

.
. // Q2
. preserve

. keep if year==1999
(90,760 observations deleted)

. digini X N, hs(hhsize)

```

Index	Estimate	Std. Err.	t	P> t	[95% Conf. Interval]	
GINI_Dis1	.4459691	.0049569	89.9694	0.0000	.4362525	.4556857
GINI_Dis2	.3395268	.0043752	77.6026	0.0000	.3309504	.3481032
diff.	-.1064423	.0034237	-31.0898	0.0000	-.1131535	-.0997311

```

. restore

.
. preserve

. keep if year==2002
(91,270 observations deleted)

. digini X N, hs(hhsize)

```

Index	Estimate	Std. Err.	t	P> t	[95% Conf. Interval]	
GINI_Dis1	.4381697	.0051025	85.8735	0.0000	.4281676	.4481718
GINI_Dis2	.3278514	.0038126	85.9916	0.0000	.3203778	.335325
diff.	-.1103183	.0033076	-33.353	0.0000	-.116802	-.1038346

```

. restore

.
. preserve

. keep if year==2005
(91,617 observations deleted)

. digini X N, hs(hhsize)

```

Index	Estimate	Std. Err.	t	P> t	[95% Conf. Interval]	
GINI_Dis1	.4390332	.0053113	82.6602	0.0000	.4286217	.4494447
GINI_Dis2	.3337069	.0040414	82.5721	0.0000	.3257848	.341629
diff.	-.1053264	.0033609	-31.3387	0.0000	-.1119146	-.0987382

```

. restore

.
. // Q3
. iprog T, ginc(X) hsize(hhsize) gobs(year) type(t) index(ka)

      Index                : Kakwani progressivity index
      Gross income variable : X
      Household size        : hhsize
      Sampling weight       : sweight
      gobs variable         : year

```

gobs	Estimate	STE	LB	UB
1993	0.065444	0.004368	0.056882	0.074006
1994	0.076990	0.003748	0.069643	0.084338
1996	0.098275	0.003735	0.090953	0.105597
1997	0.096034	0.003697	0.088787	0.103280
1998	0.100705	0.004885	0.091129	0.110281
1999	0.111523	0.003091	0.105464	0.117582
2000	0.107969	0.003774	0.100570	0.115367
2002	0.104482	0.003799	0.097036	0.111928
2003	0.108929	0.003454	0.102158	0.115700
2004	0.105856	0.003128	0.099725	0.111987
2005	0.111418	0.003713	0.104140	0.118696

```

.
. // Q4
. preserve

. keep if year==2005
(91,617 observations deleted)

```



```

. cprog T, rank(X) hsize(X) type(t) appr(tr)
(8,383 real changes made)
(7,841 real changes made)

. restore

.
. // Q5
. preserve

. keep if year==2005
(91,617 observations deleted)

. iprog T, ginc(X) hsize(hhsize) gobs(province) type(t) index(ka)

```

```

      Index                : Kakwani progressivity index
      Gross income variable : X
      Household size        : hhsize
      Sampling weight       : sweight
      gobs variable         : province

```

> —		gobs	Estimate	STE	LB	UB
>						
> —						
Newfoundland			0.091477	0.010065	0.071676	0.1112
> 77						
Prince_Edward_Island			0.050100	0.013058	0.024367	0.0758
> 33						
Nova_Scotia			0.106620	0.010190	0.086604	0.1266
> 37						
New_Brunswick			0.112049	0.010531	0.091355	0.1327
> 43						
Quebec			0.116628	0.006875	0.103142	0.1301
> 13						
Ontario			0.114726	0.005618	0.103709	0.1257
> 43						
Manitoba			0.137435	0.012351	0.113178	0.1616
> 91						
Saskatchewan			0.106193	0.008148	0.090191	0.1221
> 95						
Alberta			0.092402	0.017235	0.058567	0.1262
> 36						
British_Columbia			0.135435	0.010437	0.114947	0.1559
> 22						

> —

```

. igini X, hs(hhsize) hg(province)

```

```

      Index      : Gini index
      Household size : hhsize
      Sampling weight : sweight
      Group variable : province

```

> —		Group	Estimate	STE	LB	U
> B						
> —						
1: Newfoundland			0.497669	0.019307	0.459823	0.5
> 5515						
2: Prince_Edward_Island			0.423448	0.020906	0.382466	0.4

> 4430				
3: Nova_Scotia		0.427035	0.015906	0.395855
> 8215				
4: New_Brunswick		0.453745	0.016566	0.421272
> 6218				
5: Quebec		0.446514	0.010774	0.425395
> 7634				
6: Ontario		0.426839	0.009171	0.408861
> 4816				
7: Manitoba		0.435761	0.016678	0.403069
> 8453				
8: Saskatchewan		0.441416	0.014410	0.413169
> 9662				
9: Alberta		0.409617	0.013939	0.382293
> 6941				
10: British_Columbia		0.456061	0.015703	0.425279
> 6844				

> _____				
Population		0.439033	0.005311	0.428622
> 9445				0.44

> _____

. restore

.

. /*

> The highest inequality in Gross incomes in 2005 was in Newfoundland.

> The highest progressivity in Taxes in 2005 was in British_Columbia.

> */

.

end of do-file

.