Online Appendix for

Regional Income Distribution in the European Union: A Parametric Approach

Tsvetana Spasova

Published in

Research on Economic Inequality vol.27, K. Decancq and P. Van Kerm (eds),

Emerald Publishing, 2019.

A. Code

This appendix provides the **R** code used in this paper for estimating the Dagum distribution parameters *a, b* and *p*.

```
1   ##########################################################
2   ## 1. Common functions.
3
4   ## Dagum density function as in formula (I .1)
5   ddagum <- function (x, a, b, p, log = FALSE )
6   {
7   lddagum <- log (a) + log (p) + (a*p - 1)* log (x)
8   - a*p*log(b) - (1+ p)* log (1 + (x/b)^a)
9   if ( log == FALSE )
10  ft <- exp ( lddagum )
11  else ft <- lddagum
12  ft
13  }
14
15  ## Weighted log - likelihood as in formula (I.7)
16  wll <- function (a, b, p, x, distr , weights )
17  {
18  ddistname <- get( paste ("d", distr , sep =""))
19  nweights <- weights [ which ((x > 0))]
20  ncens <- x[ which ((x > 0))]
21  wll <- - sum ( nweights * ddistname (ncens , a, b, p,
22  log = TRUE ))
23  return (wll)
24  }
25
26  ##########################################################
27  # 2. Country processing code
28
29  ## For each country read input data .
30  eqincome <- c (......) # from microdata set
31  hweight <- c (......) # from microdata set
32  curr _ mean <- weighted.mean ( eqincome , hweight )
33
34  ## Give initial values for a, b and p.
35  initial _ values <- c(2, curr _mean , 0.4)
36
37  ## Optimize the a, b and p distribution parameter values
38  nlminb ( initial _ values , function ( theta ) {
39  wll ( theta [1] , theta [2] , theta [3] , eqincome ,
40  distr = " dagum ", weights = hweight )},
41  lower = c(0.01 , 0.01 , 0.01), upper = c(Inf , Inf , Inf)
42  ))
```

B. Data definitions and preprocessing

In this appendix the survey data variables used in this work are explained and defined. In terms of variables, first we use the equivalised disposable household income (edhi) which is given in Euro for all countries. This is the variable HX090 in EU-SILC. The variable HX090 is defined as

$$\mathrm{HX090} = \frac{\mathrm{HY020} * \mathrm{HX025}}{\mathrm{HX050}},$$

where HY020 is the total disposable household income (defined below), HX050 is the equivalised household size (defined later), and HY025 is a within-household non-response inflation factor (explained below).

To make the income comparable across countries, we compute it in purchasing power parities (ppp) which together with the exchange rates (xrate) are provided by Eurostat. The ppps and the exchange rates are taken from the file "PPP rates X-sectional from 06-01-2015" available in the UDB documentation on CIRCABC. For countries which are members of the Euro Area, we compute the income in ppps as

$$\mathrm{edhi\_ppp} = \mathrm{edhi}/\mathrm{ppp},$$

and for countries which are not members of the Euro Area as

$$\mathrm{edhi\_ppp} = (\mathrm{edhi} * \mathrm{xrate})/\mathrm{ppp},$$

defined as in Eurostat (2011a). To account for population size, we use the household cross-sectional weight (DB090 in EU-SILC). The EU-SILC cross-sectional surveys, except for the United Kingdom and Ireland, usually have the income reference period as the previous calendar year (Atkinson and Marlier (2010)). For the United Kingdom the income reference period is the current year and for Ireland it is the previous twelve months.

Next, we provide the definitions of the total disposable household income (HY020) and the equivalised household size (HX050) as given by Eurostat. The **total disposable household income** (HY020) can be computed as (see Eurostat, 2011b):

- the sum for all household members of gross personal income components, namely
  - gross employee cash or near cash income (PY010G),
  - company car (PY021G),
  - gross cash benefits or losses from self-employment (including royalties) (PY050G),
  - pensions received from individual private plans (other than those covered under ESSPROS) (PY080G),
  - unemployment benefits (PY090),
  - old-age benefits (PY100G),
  - survivor' benefits (PY110G),
  - sickness benefits (PY120G),
  - disability benefits (PY130G),
  - education-related allowances (PY140G);

- plus gross income components at household level, namely

  - income from rental of a property or land (HY040G),
  - family/-children-related allowances (HY050G),
  - social exclusion not elsewhere classified (HY060G), housing allowances (HY070G),
  - regular inter-household cash transfers received (HY080G),
  - interests, dividends, profit from capital investments in unincorporated business (HY090G),
  - income received by people aged under 16 (HY110G);

- minus

  - regular taxes on wealth (HY120G),
  - regular inter-household cash transfer paid (HY130G),
  - tax on income and social insurance contributions (HY140G).

The equivalised household size (HX050) is defined as (see Eurostat (2011a)):

$$\text{HX050} = 1 + 0.5 * (\text{HM}_{14+} - 1) + 0.3 * \text{HM}_{13-}, \text{ with}$$

HM_{14+} the number of household members aged 14 and over (at the end of the income reference period),
HM_{13-} the number of household members aged 13 or less (at the end of the income reference period).

The **within-household non-response inflation factor** (HX025) is used to correct for partial unit or individual non-response. However, this applies on average only to 5 countries per year, namely Bulgaria, Germany, Greece, Portugal and Romania, with average non-response of around 1.28% within the EU-SILC 2007 – 2011 surveys. For all other countries and individuals, $\text{HX025} = 1$.

Table 5 provides descriptive statistics for one of the used EU- SILC data sets, namely "EUSILC UDB 2011 version 2 of August 2013". The descriptive statistics include sample and population size, and summary statistics for the income converted to purchasing power parities (ppps). The average sample size is 7, 836, the average mean income is 15, 886 ppps, the smallest income is – 318, 771 ppps for Luxembourg and the largest is 1, 535, 588 ppps for Finland. The mean incomes are slightly different than the ones given in Table 7 since here the negative incomes are included. The population size of a country is computed as the sum of the product of the household size (HX040) and the household weight (DB090).

References

Atkinson, A. B. and Marlier, E. (2010). Living conditions in Europe and the Europe 2020 agenda. In A. B. Atkinson and E. Marlier (Eds.), *Income and Living Conditions in Europe*. Luxembourg: Publications Office of the European Union.

Eurostat (2011a). Cross-sectional data. Differences between data collected (as described in the guidelines) and anonymised user database. *European Commission. Directorate F:*

Social Statistics. Unit F-4: Quality of life, Eurostat.

Eurostat (2011b). Description of target variables: Cross-sectional and Longitudinal. 2011 operation (Version May 2011). EU-SILC 065 (2011 operation). *European Commission. Directorate F: Social Statistics and Information Society*, Eurostat.

Table 5: Descriptive statistics for 2011
("EUSILC UDB 2011 version 2 of August2013")

	Sample size	Population size	Min income	1st income quartile	Median income	Mean income	3rd income quartile	Max income
AT	6 187	8 315 881	0	14 987	20 250	22 458	26 693	278 109
BE	5 910	10 826 442	-25 929	12 783	17 992	19 452	23 858	1 514 598
BG	6 554	7 518 649	0	3 616	5 700	6 725	8 283	234 696
CH	7 502	7 619 680	-37 754	16 522	23 069	26 541	31 750	523 184
CY	3 917	839 751	0	13 849	19 238	22 378	26 698	857 039
CZ	8 866	10 434 558	-356	7 761	9 858	11 167	12 982	136 139
DE	13 512	80 845 125	-270 224	13 108	18 241	20 642	25 150	563 242
DK	5 331	5 512 919	-119 447	13 841	18 680	20 228	24 393	195 271
EE	4 993	1 328 259	-3 878	5 036	7 334	8 612	10 765	65 872
EL	6 029	10 991 212	-1 672	7 500	11 480	13 197	16 520	189 878
ES	13 109	45 900 276	-25 357	8 360	12 906	14 698	19 108	121 282
FI	9 351	5 294 659	-567	12 993	17 742	19 633	23 554	1 535 588
FR	11 360	61 359 753	-10 115	13 290	18 053	21 568	24 672	833 237
HR	6 403	4 225 193	-2 507	4 862	7 304	8 122	10 221	57 693
HU	11 685	9 850 181	-2 609	5 162	7 017	7 903	9 493	57 133
IS	3 018	300 766	-18 558	13 464	17 135	18 703	21 846	256 820
IT	19 399	60 683 909	-19 427	10 464	15 513	17 538	21 581	1 060 375
LT	5 201	3 234 482	-1 783	4 080	6 165	7 096	8 916	61 404
LU	5 464	497 640	-318 771	19 229	26 667	30 048	37 153	420 018
LV	6 599	2 049 851	-6 080	3 856	5 666	6 953	8 775	46 466
MT	4 076	412 580	-11 391	9 996	14 033	15 683	19 300	80 568
NL	10 492	16 526 278	-96 850	14 278	18 748	20 825	24 912	497 711
NO	4 628	4 961 793	-29 401	19 177	24 196	25 939	30 601	386 971
PL	12 871	37 473 013	-3 192	5 684	8 207	9 493	11 504	218 700
PT	5 740	10 636 979	290	6 651	9 583	11 860	14 114	145 834
RO	7 675	21 501 653	-324	2 286	3 554	4 056	5 196	70 562
SE	6 717	9 531 043	-88 299	13 703	18 474	19 592	23 720	569 650
SI	9 247	2 003 382	-8 230	10 461	13 797	14 814	17 923	98 549
SK	5 200	5 392 446	136	6 806	8 855	9 802	11 820	472 196
UK	8 058	61 770 154	-87 420	12 137	17 190	20 856	25 089	665 157

C. Data sets and tables

The exact names of the data sets that we use in this work are

"EUSILC UDB 2007 version 6 of August 2011",
"EUSILC UDB 2008 version 5 of March 2012",
"EUSILC UDB 2009 version 4 of August 2012",
"EUSILC UDB 2010 version 4 of August 2013",
"EUSILC UDB 2011 version 2 of August 2013",

as obtained from the EU-SILC User Database (UDB).

In terms of variables, we use the equivalised disposable household income converted in purchasing power parities (for more details see Appendix B. Data definitions and preprocessing). For computational reasons, we set all negative income values to zero. In fact, there are very few zero and negative incomes in the EU-SILC 2007 – 2011 surveys (the average is 0.32%) and they do not affect substantially the total income distribution.

Table 6 lists the estimated parameters $\hat{a}$, $\hat{b}$ and $\hat{p}$ for the Dagum distribution for all the observed countries from 2007 to 2011 and their respective standard errors. Table 7 shows the empirical estimates for the Gini coefficient, the mean and the median and their parametric representations, estimated using the suggested parametric model along with standard errors. The empirical estimates given in the tables are computed in **R** with the EU-SILC microdata and the functions `gini` (**R** package **reldist** (Handcock (2015)), `weighted.mean` (package **stats**) and `wtd.quantile` (type "*i/n*", package **Hmisc** (Harrell Jr et al. (2015))), respectively. Note that the mean and the median are given in purchasing power parities (ppp) (explained in Appendix: B. Data definitions and preprocessing). The standard errors of the parametric estimates were computed with a parametric bootstrap as explained in section 3.4.

For Eurostat's official estimates of the Gini coefficients see Eurostat (2013).

References

Eurostat (2013). Gini Coefficient of Equivalised Disposable Income. Available online at: https://data.europa.eu/euodp/data/dataset/rkeZ1htI2J2YycyRb2rBXg

Handcock, M. S. (2015). *Relative Distribution Methods*. Version 1.6-4. Project home page at http://www.stat.ucla.edu/~handcock/RelDist.

Harrell Jr, F. E., with contributions from Charles Dupont, and many others. (2015). *Hmisc: Harrell Miscellaneous*. R package version 3.17-0. http://CRAN.R-project. org/package=Hmisc.

Table 6: Estimated distribution parameters (2007 − 2011)

	$\hat{a}$	SE($\hat{a}$)	$\hat{b}$	SE($\hat{b}$)	$\hat{p}$	SE($\hat{p}$)
2007						
AT	4.1376	(0.084)	19450.56	(336.87)	0.7904	(0.036)
BE	4.2481	(0.095)	18322.31	(313.30)	0.7074	(0.032)
BG	3.8027	(0.110)	4818.99	(95.75)	0.4166	(0.019)
CY	3.3789	(0.083)	17239.85	(489.76)	1.1180	(0.070)
CZ	3.9684	(0.060)	8720.24	(131.76)	1.0729	(0.041)
DE	3.7768	(0.049)	19570.74	(221.79)	0.7432	(0.020)
DK	4.9917	(0.111)	19087.24	(267.22)	0.6652	(0.029)
EE	3.2437	(0.074)	7284.70	(172.31)	0.7794	(0.038)
EL	3.1212	(0.065)	12863.59	(291.76)	0.7786	(0.034)
ES	3.6947	(0.059)	16355.22	(207.82)	0.5981	(0.017)
FI	3.9862	(0.063)	15377.67	(216.27)	0.9489	(0.034)
FR	3.8277	(0.055)	15317.79	(212.10)	0.9647	(0.033)
HU	4.1839	(0.070)	6937.75	(98.15)	0.8263	(0.030)
IT	3.5292	(0.041)	17255.24	(180.03)	0.6583	(0.015)
LU	3.5495	(0.088)	26226.17	(730.92)	1.0793	(0.068)
LV	2.9245	(0.073)	6329.09	(178.71)	0.7765	(0.040)
NL	3.8529	(0.057)	17307.33	(253.13)	1.0571	(0.038)
PL	3.2601	(0.044)	6152.88	(86.39)	0.8241	(0.023)
PT	2.5078	(0.057)	8003.65	(307.90)	1.2815	(0.081)
RO	2.9747	(0.058)	3615.72	(73.51)	0.6131	(0.022)
SE	5.2231	(0.103)	18835.17	(213.52)	0.5731	(0.020)
SI	4.7012	(0.084)	14391.72	(178.82)	0.7255	(0.027)
SK	4.4924	(0.101)	6135.78	(102.27)	0.7729	(0.036)
UK	3.2715	(0.054)	20528.32	(351.72)	0.8025	(0.028)
2008						
AT	3.9057	(0.080)	18943.87	(363.24)	0.9478	(0.045)
BE	4.0898	(0.077)	18401.14	(281.21)	0.7615	(0.029)
BG	2.9651	(0.073)	5510.52	(148.84)	0.7498	(0.038)
CY	3.5892	(0.091)	18612.47	(508.89)	1.0328	(0.064)
CZ	4.1616	(0.057)	9780.06	(123.81)	1.0013	(0.034)
DE	3.6960	(0.057)	20022.28	(281.31)	0.7762	(0.025)
DK	4.9455	(0.102)	19939.14	(265.26)	0.6537	(0.026)
EE	3.4370	(0.081)	8614.37	(190.24)	0.7327	(0.035)
EL	3.3019	(0.070)	13830.47	(298.93)	0.7556	(0.033)
ES	3.8250	(0.057)	17791.22	(204.67)	0.5670	(0.015)
FI	3.9590	(0.060)	16942.70	(235.17)	0.9158	(0.032)
FR	3.3732	(0.049)	16027.11	(288.00)	1.2719	(0.050)
HU	4.1306	(0.069)	6768.50	(97.82)	0.9043	(0.034)
IT	3.7362	(0.043)	18476.74	(182.07)	0.6294	(0.014)
LT	3.1620	(0.073)	7789.24	(192.88)	0.7792	(0.038)
LU	3.5398	(0.085)	25783.55	(699.88)	1.1279	(0.070)
LV	2.7223	(0.059)	8125.85	(223.47)	0.7927	(0.037)
NL	3.8604	(0.057)	19129.82	(283.62)	1.0260	(0.037)
PL	3.2459	(0.043)	7170.10	(105.08)	0.8803	(0.026)
PT	2.7003	(0.062)	9041.75	(298.67)	1.1156	(0.065)

Table 6. (Continued)

	$\hat{a}$	SE($\hat{a}$)	$\hat{b}$	SE($\hat{b}$)	$\hat{p}$	SE($\hat{p}$)
RO	3.2052	(0.063)	3986.50	(73.27)	0.5783	(0.021)
SE	5.1931	(0.104)	20964.53	(242.96)	0.5740	(0.021)
SI	4.7998	(0.084)	15572.23	(179.98)	0.6830	(0.023)
SK	4.8399	(0.105)	7690.53	(112.46)	0.6655	(0.028)
UK	3.1794	(0.053)	20053.18	(378.36)	0.8447	(0.031)
2009						
AT	4.1800	(0.085)	20666.36	(343.79)	0.7854	(0.034)
BE	4.2319	(0.084)	19176.23	(303.38)	0.7560	(0.031)
BG	3.2929	(0.071)	6831.65	(142.40)	0.6659	(0.028)
CY	3.2433	(0.086)	16994.09	(609.72)	1.2894	(0.100)
CZ	4.1460	(0.064)	9388.07	(130.90)	1.0446	(0.039)
DE	3.7771	(0.053)	20098.35	(253.91)	0.7565	(0.022)
DK	5.3999	(0.120)	21384.05	(258.61)	0.5452	(0.022)
EE	3.2366	(0.077)	8712.63	(214.65)	0.8465	(0.043)
EL	3.3262	(0.069)	14107.05	(291.89)	0.7769	(0.033)
ES	4.0121	(0.059)	19257.04	(201.43)	0.4799	(0.012)
FI	4.0916	(0.063)	18042.75	(243.28)	0.8712	(0.030)
FR	3.3356	(0.048)	16322.51	(294.64)	1.2255	(0.048)
HU	4.1012	(0.060)	6884.16	(93.57)	0.9582	(0.034)
IT	3.6733	(0.042)	18717.21	(181.47)	0.6238	(0.014)
LT	3.0780	(0.074)	8538.97	(217.99)	0.7374	(0.036)
LU	3.3954	(0.077)	25861.48	(688.11)	1.0930	(0.064)
LV	2.9410	(0.065)	8882.64	(210.07)	0.6701	(0.029)
NL	4.0081	(0.062)	20381.42	(277.31)	0.8840	(0.031)
PL	3.2815	(0.043)	7696.39	(110.16)	0.9008	(0.027)
PT	2.8232	(0.061)	9329.67	(267.09)	1.0363	(0.054)
RO	3.4099	(0.070)	4512.56	(73.69)	0.5451	(0.019)
SE	5.1928	(0.103)	22825.90	(247.95)	0.5271	(0.018)
SI	4.8829	(0.082)	15948.49	(180.62)	0.7107	(0.025)
SK	4.4231	(0.096)	8823.57	(140.19)	0.7282	(0.032)
UK	3.2441	(0.053)	18295.71	(325.64)	0.8516	(0.031)
2010						
AT	3.8682	(0.075)	19295.13	(362.13)	0.9785	(0.046)
BE	4.2305	(0.095)	19592.69	(343.75)	0.7023	(0.033)
BG	3.4006	(0.073)	7115.44	(140.02)	0.6461	(0.027)
CY	3.2462	(0.078)	17047.74	(511.93)	1.1979	(0.077)
CZ	4.1544	(0.065)	9782.29	(144.46)	1.0023	(0.039)
DE	3.6051	(0.050)	18408.35	(247.21)	0.8913	(0.027)
DK	5.3760	(0.125)	22411.00	(267.99)	0.4759	(0.019)
EE	3.3177	(0.080)	8437.33	(198.93)	0.7881	(0.039)
EL	3.2704	(0.063)	13934.90	(281.49)	0.8003	(0.033)
ES	3.8570	(0.060)	18681.71	(212.89)	0.4718	(0.013)
FI	4.1262	(0.061)	17761.85	(230.00)	0.8970	(0.030)
FR	3.4446	(0.048)	17745.89	(279.65)	1.0296	(0.036)

Table 6. (Continued)

	$\hat{a}$	SE($\hat{a}$)	$\hat{b}$	SE($\hat{b}$)	$\hat{p}$	SE($\hat{p}$)
HU	4.2323	(0.066)	6908.70	(92.36)	0.9135	(0.033)
IT	3.8523	(0.049)	19226.48	(187.57)	0.5732	(0.013)
LT	3.0160	(0.066)	7628.10	(174.71)	0.6544	(0.028)
LU	3.5952	(0.079)	26756.06	(606.86)	0.9773	(0.051)
LV	3.1122	(0.067)	7729.01	(164.04)	0.6122	(0.025)
NL	4.1557	(0.063)	19937.42	(253.30)	0.8806	(0.029)
PL	3.3588	(0.049)	8242.92	(118.33)	0.8225	(0.025)
PT	2.9055	(0.064)	9638.01	(269.49)	1.0219	(0.054)
RO	3.4451	(0.067)	4541.37	(77.55)	0.5883	(0.021)
SE	5.2869	(0.108)	22201.91	(249.83)	0.5252	(0.019)
SI	4.6152	(0.080)	14843.25	(179.48)	0.7206	(0.025)
SK	4.5374	(0.106)	9917.55	(151.74)	0.6275	(0.028)
UK	3.1212	(0.052)	17612.79	(350.80)	0.9403	(0.037)
2011						
AT	4.2863	(0.097)	23106.61	(391.81)	0.6851	(0.032)
BE	4.3430	(0.102)	20413.0	(335.27)	0.6712	(0.030)
BG	3.2583	(0.072)	7094.97	(142.62)	0.6165	(0.025)
CY	3.3681	(0.081)	18468.5	(516.42)	1.1077	(0.067)
CZ	4.0603	(0.064)	10033.5	(149.34)	0.9878	(0.038)
DE	3.8206	(0.051)	20394.0	(244.54)	0.7560	(0.021)
DK	4.7406	(0.112)	22619.8	(323.91)	0.5635	(0.024)
EE	3.4249	(0.080)	8923.23	(198.05)	0.6697	(0.031)
EL	3.4499	(0.076)	13977.8	(283.40)	0.6342	(0.027)
ES	3.7775	(0.059)	18207.9	(209.31)	0.4732	(0.012)
FI	4.0336	(0.066)	18331.5	(265.45)	0.8975	(0.033)
FR	3.3272	(0.048)	17390.2	(290.64)	1.1053	(0.040)
HU	3.6470	(0.053)	6934.27	(104.35)	1.0294	(0.036)
IT	3.9594	(0.049)	20412.8	(186.23)	0.5083	(0.011)
LT	3.5089	(0.081)	7845.62	(156.42)	0.5870	(0.025)
LU	3.6785	(0.075)	27220.5	(553.13)	0.9582	(0.046)
LV	3.1157	(0.065)	7173.01	(146.06)	0.6526	(0.026)
NL	4.0893	(0.060)	19274.9	(250.39)	0.9489	(0.032)
PL	3.4433	(0.049)	9073.83	(124.79)	0.7843	(0.024)
PT	2.8431	(0.057)	9302.14	(254.51)	1.0790	(0.054)
RO	3.7352	(0.075)	4903.64	(74.97)	0.4816	(0.017)
SE	5.1024	(0.113)	22149.0	(276.91)	0.5485	(0.021)
SI	4.7511	(0.081)	15652.2	(178.73)	0.6713	(0.022)
SK	4.6752	(0.111)	10723.3	(158.87)	0.5866	(0.025)
UK	3.1609	(0.053)	18077.4	(355.47)	0.9304	(0.036)

Table 7: Gini coefficients, mean and median (2007 − 2011)

	Gini		SE(Gini	Mean		SE(Mean	Median		SE(Median
	Empirical	Parametric	Parametric)	Empirical	Parametric	Parametric)	Empirical	Parametric	Parametric)
2007									
AT	0.2619	0.2579	(0.003)	19955.03	19748.77	(122.49)	17808.03	17920.23	(101.92)
BE	0.2623	0.2603	(0.003)	17781.85	17808.71	(115.45)	16311.07	16252.42	(97.66)
BG	0.3529	0.3488	(0.004)	3835.86	3748.78	(40.75)	3298.93	3288.03	(33.35)
CY	0.2978	0.2886	(0.005)	21158.30	20906.49	(205.30)	18244.05	18033.35	(153.31)
CZ	0.2527	0.2477	(0.002)	10023.32	9943.47	(48.73)	8840.71	8934.98	(40.25)
DE	0.2989	0.2871	(0.002)	19836.96	19655.23	(97.27)	17324.67	17452.31	(82.75)
DK	0.2451	0.2277	(0.002)	18255.46	17990.66	(101.82)	16865.51	16901.41	(87.78)
EE	0.3341	0.3280	(0.004)	7741.81	7689.45	(73.16)	6490.87	6519.01	(55.99)
EL	0.3427	0.3406	(0.004)	13628.90	13708.96	(132.80)	11436.55	11456.10	(91.48)
ES	0.3126	0.3140	(0.003)	14884.04	15037.44	(83.78)	13117.82	13234.11	(71.27)
FI	0.2616	0.2543	(0.002)	16940.01	16778.86	(82.62)	15240.21	15097.27	(68.31)
FR	0.2656	0.2636	(0.002)	16949.41	16959.25	(86.48)	15148.29	15118.76	(68.56)
HU	0.2555	0.2518	(0.002)	7195.66	7147.28	(38.04)	6490.14	6499.80	(32.64)
IT	0.3222	0.3178	(0.002)	16552.40	16631.92	(72.01)	14404.92	14459.45	(61.23)
LT	0.3382	0.3414	(0.005)	6869.35	6922.04	(71.97)	5713.35	5805.62	(50.84)
LU	0.2736	0.2768	(0.004)	30737.93	30882.05	(288.22)	26839.20	27010.84	(216.14)
LV	0.3536	0.3629	(0.005)	6727.86	6868.52	(77.36)	5515.25	5585.13	(55.73)
NL	0.2725	0.2561	(0.002)	20052.17	19774.57	(103.44)	17537.36	17653.52	(79.61)
PL	0.3218	0.3216	(0.002)	6645.75	6648.13	(37.39)	5608.55	5651.94	(26.93)
PT	0.3691	0.3814	(0.006)	11734.87	11956.58	(161.61)	8950.76	9136.22	(88.12)
RO	0.3783	0.3808	(0.004)	3447.55	3473.98	(31.15)	2876.40	2818.82	(23.36)
SE	0.2339	0.2306	(0.002)	17035.04	16883.52	(83.11)	15907.47	15990.61	(79.35)
SI	0.2330	0.2341	(0.002)	13998.20	14004.74	(69.32)	12917.11	13022.78	(58.92)
SK	0.2447	0.2397	(0.003)	6182.34	6123.64	(41.16)	5607.93	5647.24	(33.27)
UK	0.3276	0.3228	(0.003)	21969.53	21905.19	(154.97)	18662.18	18637.11	(113.02)

Table 7. (Continued)

	Gini		SE(Gini	Mean		SE(Mean	Median		SE(Median
	Empirical	Parametric	Parametric)	Empirical	Parametric	Parametric)	Empirical	Parametric	Parametric)
2008									
BE	0.2731	0.2638	(0.003)	18638.45	18455.54	(119.35)	16742.81	16705.47	(101.03)
BG	0.3593	0.3613	(0.005)	5842.11	5854.62	(69.07)	4762.96	4784.30	(48.20)
CY	0.2795	0.2765	(0.004)	21554.68	21483.50	(208.05)	19079.34	18844.94	(159.81)
CZ	0.2475	0.2402	(0.002)	10914.45	10779.42	(48.07)	9724.99	9784.30	(39.80)
DE	0.3001	0.2894	(0.002)	20774.41	20534.31	(103.47)	18006.40	18133.17	(86.59)
DK	0.2485	0.2311	(0.003)	18996.58	18689.58	(108.08)	17600.61	17536.03	(97.82)
EE	0.3092	0.3156	(0.004)	8635.08	8738.55	(79.88)	7561.65	7547.42	(63.89)
EL	0.3315	0.3252	(0.004)	14254.78	14339.31	(120.86)	12029.31	12225.90	(90.72)
ES	0.3083	0.3096	(0.002)	15761.32	15942.17	(83.60)	13948.62	14158.07	(73.25)
FI	0.2632	0.2584	(0.002)	18407.67	18277.31	(96.08)	16554.57	16421.84	(74.19)
FR	0.2895	0.2816	(0.003)	20676.97	20443.46	(126.61)	17566.06	17633.52	(85.61)
HU	0.2519	0.2486	(0.002)	7237.80	7213.09	(37.26)	6596.56	6540.32	(31.72)
IT	0.3098	0.3055	(0.002)	17315.90	17347.88	(72.95)	15262.33	15331.12	(58.14)
LT	0.3398	0.3362	(0.004)	8241.32	8275.14	(85.82)	6946.49	6949.91	(59.94)
LU	0.2765	0.2748	(0.004)	30905.79	30896.30	(292.17)	26942.93	27005.71	(209.78)
LV	0.3773	0.3869	(0.005)	8925.64	9142.16	(111.86)	7254.53	7185.94	(73.08)
NL	0.2728	0.2574	(0.002)	21929.36	21615.38	(112.76)	19141.46	19306.45	(89.02)
PL	0.3201	0.3176	(0.003)	8004.69	7981.99	(45.84)	6731.61	6782.51	(33.93)
PT	0.3578	0.3624	(0.005)	12007.61	12073.74	(158.41)	9502.25	9555.44	(89.81)
RO	0.3597	0.3619	(0.004)	3645.18	3668.98	(31.15)	3064.51	3067.93	(23.39)
SE	0.2370	0.2317	(0.002)	18916.07	18800.68	(89.78)	17799.25	17791.27	(88.41)
SI	0.2343	0.2342	(0.002)	14847.51	14829.97	(67.85)	13792.14	13843.84	(61.92)
SK	0.2363	0.2345	(0.003)	7311.52	7257.03	(42.70)	6761.53	6785.02	(40.67)
UK	0.3390	0.3275	(0.003)	22357.21	22056.34	(162.18)	18542.83	18592.48	(117.45)
2009									
AT	0.2566	0.2559	(0.003)	21029.55	20908.17	(137.86)	18915.55	19013.27	(118.88)
BE	0.2603	0.2558	(0.003)	19086.87	19105.65	(123.35)	17502.11	17420.06	(103.06)
BG	0.3336	0.3381	(0.004)	6638.28	6693.26	(59.93)	5725.48	5684.43	(47.78)

Table 7. (Continued)

	Gini		SE(Gini	Mean		SE(Mean	Median		SE(Median
	Empirical	Parametric	Parametric)	Empirical	Parametric	Parametric)	Empirical	Parametric	Parametric)
CY	0.2915	0.2924	(0.005)	22090.55	22141.36	(259.00)	19136.84	18871.89	(169.13)
CZ	0.2507	0.2386	(0.002)	10695.53	10503.76	(48.82)	9442.89	9525.03	(40.73)
DE	0.2911	0.2855	(0.002)	20503.78	20329.31	(105.97)	17949.25	18053.32	(81.13)
DK	0.2433	0.2280	(0.002)	18921.53	18864.99	(101.78)	17917.79	17959.91	(98.28)
EE	0.3141	0.3217	(0.004)	9402.50	9543.38	(91.47)	8100.27	8096.44	(68.42)
EL	0.3282	0.3204	(0.004)	14757.02	14781.26	(115.76)	12532.78	12641.05	(93.18)
ES	0.3173	0.3150	(0.002)	15787.03	16022.03	(84.24)	13989.64	14366.90	(73.99)
FI	0.2593	0.2535	(0.002)	19155.63	19006.03	(93.72)	17367.45	17201.38	(75.39)
FR	0.2987	0.2869	(0.003)	20953.19	20613.22	(122.44)	17735.51	17718.64	(85.88)
HU	0.2468	0.2465	(0.002)	7494.04	7495.56	(35.92)	6828.52	6784.94	(30.44)
IT	0.3143	0.3113	(0.002)	17537.12	17536.80	(76.34)	15262.45	15419.21	(64.32)
LT	0.3551	0.3502	(0.005)	8933.93	8906.36	(91.64)	7299.63	7390.57	(67.89)
LU	0.2913	0.2886	(0.004)	31133.56	31033.76	(295.18)	27106.30	26804.79	(204.19)
LV	0.3735	0.3753	(0.004)	8833.42	8950.96	(95.82)	7296.22	7255.45	(69.32)
NL	0.2683	0.2577	(0.002)	21953.58	21658.04	(114.37)	19364.08	19513.93	(90.06)
PL	0.3141	0.3124	(0.003)	8641.87	8625.20	(51.18)	7360.95	7358.58	(36.74)
PT	0.3538	0.3516	(0.005)	11828.69	11768.91	(131.45)	9424.70	9493.61	(85.48)
RO	0.3486	0.3486	(0.004)	3989.42	4005.67	(31.34)	3426.73	3422.85	(26.35)
SE	0.2464	0.2397	(0.002)	20067.66	19872.66	(104.99)	18823.02	18818.86	(94.96)
SI	0.2274	0.2272	(0.002)	15378.22	15379.35	(68.52)	14329.25	14390.62	(61.77)
SK	0.2483	0.2480	(0.003)	8679.06	8636.86	(58.81)	7823.80	7944.77	(50.43)
UK	0.3234	0.3205	(0.003)	20074.67	20080.47	(147.34)	16831.51	17051.33	(107.12)
2010									
AT	0.2611	0.2599	(0.003)	21490.55	21422.63	(143.62)	19131.60	19144.67	(109.74)
BE	0.2653	0.2619	(0.003)	19045.89	18999.47	(125.23)	17348.81	17324.22	(107.78)
BG	0.3318	0.3310	(0.004)	6832.00	6838.53	(60.70)	5892.06	5870.07	(46.84)
CY	0.2980	0.2964	(0.005)	21584.03	21563.74	(221.35)	18349.81	18377.67	(152.21)
CZ	0.2494	0.2406	(0.002)	10936.59	10789.13	(54.38)	9671.24	9789.71	(43.90)
DE	0.2904	0.2855	(0.002)	20131.43	20046.71	(104.46)	17594.19	17596.83	(76.44)

Table 7. (Continued)

	Gini		SE(Gini	Mean		SE(Mean	Median		SE(Median
	Empirical	Parametric	Parametric)	Empirical	Parametric	Parametric)	Empirical	Parametric	Parametric)
DK	0.2524	0.2424	(0.003)	19094.48	18851.84	(114.17)	17968.99	17956.70	(104.27)
EE	0.3123	0.3200	(0.004)	8791.46	8901.52	(83.92)	7420.38	7607.84	(62.93)
EL	0.3284	0.3231	(0.004)	14738.57	14852.28	(121.33)	12613.65	12634.45	(89.76)
ES	0.3330	0.3285	(0.002)	15180.85	15417.92	(86.77)	13353.79	13659.48	(73.34)
FI	0.2542	0.2494	(0.002)	18991.29	18878.10	(89.46)	17232.06	17114.07	(71.31)
FR	0.2978	0.2883	(0.003)	21001.48	20704.93	(116.35)	17890.99	17954.21	(88.82)
HU	0.2406	0.2420	(0.002)	7333.18	7358.19	(36.26)	6715.73	6704.12	(28.15)
IT	0.3114	0.3064	(0.002)	17331.40	17302.48	(74.95)	15224.48	15399.98	(64.46)
LT	0.3689	0.3690	(0.005)	7504.53	7548.81	(82.77)	6069.29	6183.13	(59.20)
LU	0.2775	0.2797	(0.004)	30031.86	30222.77	(261.42)	26634.14	26518.90	(187.41)
LV	0.3605	0.3654	(0.004)	7266.96	7351.72	(73.66)	5974.10	6087.21	(54.65)
NL	0.2538	0.2489	(0.002)	21091.32	21028.45	(102.03)	18836.06	19092.73	(81.25)
PL	0.3110	0.3126	(0.003)	8811.79	8831.92	(49.40)	7587.10	7584.31	(38.03)
PT	0.3366	0.3426	(0.005)	11829.43	11925.23	(129.06)	9738.50	9737.83	(82.21)
RO	0.3328	0.3368	(0.003)	4132.12	4173.98	(31.51)	3543.97	3589.61	(25.28)
SE	0.2399	0.2361	(0.002)	19474.18	19319.95	(102.90)	18341.44	18344.72	(95.75)
SI	0.2380	0.2388	(0.002)	14400.54	14429.13	(66.63)	13353.65	13376.14	(62.00)
SK	0.2588	0.2546	(0.003)	9285.11	9186.54	(58.84)	8370.22	8495.83	(54.22)
UK	0.3278	0.3249	(0.004)	20361.32	20426.45	(155.33)	16959.03	17132.89	(109.86)
2011									
AT	0.2631	0.2608	(0.003)	22457.57	22177.20	(146.51)	20249.83	20277.48	(124.67)
BE	0.2620	0.2593	(0.003)	19461.71	19425.70	(126.50)	17992.35	17809.84	(110.18)
BG	0.3509	0.3495	(0.004)	6724.72	6717.42	(59.60)	5699.85	5668.53	(46.35)
CY	0.2914	0.2902	(0.004)	22377.59	22339.71	(217.87)	19238.34	19250.17	(160.83)
CZ	0.2524	0.2471	(0.002)	11167.05	11062.35	(57.42)	9858.34	9991.60	(47.82)
DE	0.2877	0.2824	(0.002)	20672.47	20586.45	(97.06)	18240.69	18335.67	(82.29)
DK	0.2666	0.2542	(0.003)	20417.37	20127.35	(130.46)	18680.15	18769.92	(121.48)
EE	0.3189	0.3252	(0.004)	8614.10	8706.10	(80.15)	7333.56	7497.71	(66.16)
EL	0.3348	0.3285	(0.004)	13200.96	13293.08	(114.20)	11479.69	11461.45	(94.19)

Table 7. (Continued)

	Gini		SE(Gini	Mean		SE(Mean	Median		SE(Median
	Empirical	Parametric	Parametric)	Empirical	Parametric	Parametric)	Empirical	Parametric	Parametric)
ES	0.3365	0.3342	(0.002)	14735.77	15046.75	(85.81)	12905.98	13245.41	(73.61)
FI	0.2581	0.2550	(0.002)	19632.87	19564.23	(102.66)	17742.45	17651.26	(83.69)
FR	0.3082	0.2939	(0.003)	21569.64	21107.10	(119.75)	18053.47	18120.09	(86.51)
HU	0.2681	0.2723	(0.002)	7903.37	7958.88	(40.49)	7016.77	7010.78	(31.07)
IT	0.3189	0.3120	(0.002)	17541.32	17420.44	(74.42)	15513.43	15585.70	(66.97)
LT	0.3284	0.3314	(0.004)	7096.71	7188.81	(66.09)	6164.57	6221.04	(55.27)
LU	0.2707	0.2747	(0.003)	30090.98	30341.79	(239.73)	26666.64	26783.74	(178.39)
LV	0.3534	0.3582	(0.004)	6955.01	7037.50	(65.51)	5665.68	5845.11	(50.30)
NL	0.2526	0.2479	(0.002)	20922.34	20926.73	(101.37)	18748.29	18932.11	(81.74)
PL	0.3105	0.3091	(0.002)	9493.80	9473.54	(53.52)	8206.76	8195.16	(43.37)
PT	0.3424	0.3462	(0.005)	11859.76	11914.78	(120.88)	9583.17	9649.25	(76.63)
RO	0.3328	0.3354	(0.003)	4056.21	4085.97	(31.61)	3553.66	3586.19	(27.66)
SE	0.2430	0.2398	(0.002)	19608.12	19544.00	(109.09)	18473.53	18452.82	(100.75)
SI	0.2383	0.2379	(0.002)	14814.77	14825.06	(70.30)	13796.71	13817.96	(61.81)
SK	0.2567	0.2536	(0.003)	9801.53	9684.39	(64.03)	8855.06	9007.66	(59.18)
UK	0.3297	0.3217	(0.003)	20867.25	20781.65	(161.56)	17190.29	17508.41	(113.50)