

## ANNEX A

### *Defining regions and functional urban areas*

#### **Territorial grids**

In any analytical study conducted at subnational levels, the choice of the territorial unit is of prime importance. To address this issue, the OECD has classified two levels of geographic units within each member country (Table A.1). The higher level (Territorial level 2 [TL2]) consists of 363 larger regions while the lower level (Territorial level 3 [TL3]) is composed of 1 802 smaller regions. All the territorial units are defined within national borders, and each TL3 region is contained in one TL2 region. In most cases TL3 regions correspond to administrative regions, with the exception of Australia, Canada, Germany and the United States.

This classification – which, for European countries, is largely consistent with the Eurostat classification – facilitates greater comparability of geographic units at the same territorial level. Indeed, these two levels, which are officially established and relatively stable in all member countries, are used as a framework for implementing regional policies in most countries. Statistics published in *Regions at a Glance 2013* reflect the latest version of NUTS classification, the NUTS 2010. However, at the time of the publication, not all data are available within the new classification; in this case, the secretariat made estimates of missing values in time series. The implementation of the new classification has an impact both at TL2 and TL3 levels for Finland, Italy and the United Kingdom. Modification of NUTS-3 regions for Germany and the Netherlands does not change TL3 regions.

Due to limited data availability, labour market indicators in Canada are presented for groups of TL3 regions. Since these groups are not part of the OECD official territorial grids, for the sake of simplicity they are labelled as non-official grids (NOGs) in this publication and compared with TL3 for the other countries (Table A.1).

The OECD has started to extend the regional classification to new member countries and selected emerging economies. More precisely, TL2 regions have been identified and statistics collected in Chile, Estonia, Israel and Slovenia (new OECD members); Brazil, Colombia, the Russian Federation, India, China and South Africa. The TL3 classification is now available only for Chile, Estonia and Slovenia (Table A.2).

The regional distribution of population within and across countries is quite varied, as summarised in Table A.3.

#### **Regional typology**

A second important issue for the analysis of subnational economies concerns the different “geography” of each geographic unit. For instance, in the United Kingdom one

could question the relevance of comparing the highly urbanised area of London to the rural region of the Shetland Islands, despite the fact that both regions belong at the same territorial level. To take account of these differences, the OECD has established a regional typology according to which TL3 regions have been classified as predominantly urban (PU), predominantly rural (PR) and intermediate (IN). This typology, based on settlement patterns calculated on the percentage of population living in rural communities, enables meaningful comparisons between regions belonging to the same type and level (Table A.4 and Figures A.1 to A.4). The OECD regional typology is based on three criteria. The first criterion identifies rural communities according to population density. A community is defined as rural if its population density is below 150 inhabitants per km<sup>2</sup> (500 inhabitants for Japan and Korea to account for the fact that the national population density exceeds 300 inhabitants per km<sup>2</sup>). The second criterion classifies regions according to the percentage of population living in rural communities. Thus, a TL3 region is classified as:

- Predominantly rural (rural or PR), if more than 50% of its population lives in rural communities.
- Predominantly urban (urban or PU), if less than 15% of the population lives in rural communities.
- Intermediate (IN), if the share of population living in rural communities is between 15% and 50%.

The third criterion is based on the size of the urban centres. Accordingly:

- A region that would be classified as rural on the basis of the general rule is classified as intermediate if it has a urban centre of more than 200 000 inhabitants (500 000 for Japan) representing no less than 25% of the regional population.
- A region that would be classified as intermediate on the basis of the general rule is classified as predominantly urban if it has an urban centre of more than 500 000 inhabitants (1 million for Japan) representing no less than 25% of the regional population.

The typology is calculated only for the lower territorial level (TL3). The dimension of TL2 regions is too large to allow for a categorisation into predominantly urban, intermediate or predominantly rural. For analytical purposes the percentage of population living in PU, IN, and PR is calculated for TL2 regions summing the population of TL3 regions by regional typology. For example the TL2 regions of Rhone-Alpes in France has 23% of its population living in TL3 regions classified as PU, 68% of its population living in TL3 regions classified as IN and 9% of its population living in TL3 regions classified as PR.

### Extended regional typology

An extended regional typology has been adopted to distinguish between rural regions that are located close to larger urban centres and those that are not. The result is a four-fold classification of TL3 regions into: predominantly urban (PU), intermediate regions (IN), predominantly rural regions close to a city (PRC) and predominantly rural remote regions (PRR) (Figure A.1). The distance from urban centres is measured by the driving time necessary to a certain share of the regional population to reach a large urban centre (with a population of at least 50 000 people). The classification of TL3 regions in Europe, Japan and North America according to the extended typology is presented in Figures A.2, A.3 and A.4.

Due to lack of information on the road network and service areas, the extended typology has not been yet applied to Australia, Chile and Korea.

## OECD functional urban areas

The OECD in collaboration with the EU (Eurostat and EC-DG Regional and Urban Policy) has developed a harmonised definition of urban areas as functional economic units, consisting of highly densely populated municipalities (urban cores) as well as any adjacent municipalities with high degree of economic integration with the urban cores, measured by travel-to-work flows. This definition overcomes previous limitations for international comparability linked to administrative boundaries. The definition is applied to 29 OECD countries (with exception of Australia, Iceland, Israel, New Zealand and Turkey), and it identifies 1 179 urban areas of different size, ranging from 50 000 inhabitants in Calera (Chile) to over 34 million in Tokyo (Japan) (Table A.5).

The methodology consists of three main steps (Figure A.5). The first step identifies urban cores: gridded population data are used to define urbanised areas or “urban high-density clusters” over the national territory, ignoring administrative borders within countries. An urban core consists of a high-density cluster of contiguous grid cells of 1 km<sup>2</sup> with a density of at least 1 500 inhabitants per km<sup>2</sup> and the filled gaps.\* A lower threshold of 1 000 people per km<sup>2</sup> is applied to Canada and the United States, where several metropolitan areas develop in a less compact manner. Small clusters (hosting less than 50 000 people in Europe, United States, Chile and Canada, 100 000 people in Japan, Korea and Mexico) are dropped. A municipality is defined as being part of an urban core if at least 50% of the population of the municipality lives within the urban cluster.

The second step connects non-contiguous urban cores that belong to the same functional urban area: two urban cores are considered belonging to the same (polycentric) urban area if more than 15% of the population of any of the cores commutes to work in the other core.

The final step of the methodology consists in delineating the hinterland of the functional urban area. Any municipality that has at least 15% of its employed residents working in a certain urban core is considered part of the functional urban area. Municipalities surrounded by a single functional urban area are included, and non-contiguous municipalities are dropped.

The functional urban areas with more than 500 000 population are defined metropolitan areas. Data in Chapter 1 refer to the 275 metropolitan areas identified in 29 OECD countries.

\* Gaps in the high-density cluster are filled using the majority rule iteratively. The majority rule means that if at least five out of the eight cells surrounding a cell belong to the same high-density cluster it will be added. This is repeated until no more cells are added.

Table A.1. **Territorial grid of OECD member countries**


	Territorial level 2	Non-official grid (NOG)	Territorial level 3
Australia	States/territories (8)	–	Statistical divisions (60)
Austria	Bundesländer (9)	–	Gruppen von Politischen Bezirken (35)
Belgium	Régions (3)	–	Provinces (11)
Canada	Provinces and territories (13)	LFS, Economic areas (71)	Census divisions (288)
Chile	Regions (15)	–	Provincias (54)
Czech Republic	Oblasti (8)	–	Kraje (14)
Denmark	Regioner (5)	–	Landsdeler (11)
Estonia	Region (1)	–	Groups of maakond (5)
Finland	Suuralueet (5)	–	Maakunnat (19)
France	Régions (22)	–	Départements (96)
Germany	Länder (16)	–	Spatial planning regions (96)
Greece	Groups of development regions (4)	–	Development regions (13)
Hungary	Planning statistical regions (7)	–	Counties + Budapest (20)
Iceland	Regions (2)	–	Landsvaedi (8)
Ireland	Groups of regional authority regions (2)	–	Regional authority regions (8)
Israel	Districts (6)	–	–
Italy	Regioni (21)	–	Province (110)
Japan	Groups of prefectures (10)	–	Prefectures (47)
Korea	Regions (7)	–	Special city, metropolitan area and province (16)
Luxembourg	State (1)	–	State (1)
Mexico	Estados (32)	–	Grupos de municipios (209)
Netherlands	Landsdelen (4)	–	Provinces (12)
New Zealand	Groups of regional councils (2)	–	Regional councils (14)
Norway	Landsdeler (7)	–	Fylker (19)
Poland	Wojewodztwa (16)	–	Podregiony (66)
Portugal	Comissaoes de coordenação e desenvolvimento regional + regioes autonomas (7)	–	Grupos de municipios (30)
Slovak Republic	Zoskupenia krajov (4)	–	Kraj (8)
Slovenia	Kohezijske regije (2)	–	Statisti ne regije (12)
Spain	Comunidades autonomas (19)	–	Provincias (59)
Sweden	Riksomraden (8)	–	Län (21)
Switzerland	Grandes regions (7)	–	Cantons (26)
Turkey	Regions (26)	–	Provinces (81)
United Kingdom	Government office regions + counties (12)	–	Upper tier authorities or groups of lower tier authorities or groups of unitary authorities or LECs or groups of districts (139)
United States	States (51)	–	Economic areas (179)

Table A.2. **Territorial grid of selected emerging economies**

	Territorial level 2	Territorial level 3
Brazil	Estados + distrito federal (27)	Mesoregiao (17)
China	Provinces; special administrative region of Hong Kong, special administrative region of Macao and Chinese Taipei (33)	–
Colombia	Departamentos (32) and Capital District	–
India	States and union territories (35)	–
Russian Federation	Oblast or okrug (83)	–
South Africa	Provinces (9)	–

**Table A.3. Smallest and largest regional population and population density by country**

		Number of TL3 regions	Region with the highest		Region with the lowest		Number of TL2 regions	Region with the highest		Region with the lowest	
			Population	Density	Population	Density		Population	Density	Population	Density
AUS	Australia	60	4 605 913	659.6	448	0.0	8	7 290 345	159.5	234 836	0.2
AUT	Austria	35	1 731 236	4 377.3	20 832	20.6	9	1 731 236	4 377.3	286 215	57.1
BEL	Belgium	11	1 791 024	7 201.5	276 154	62.2	3	6 372 575	7 201.5	1 159 448	212.0
CAN	Canada	288	2 791 140	4 429.0	1 123	0.01	13	13 505 900	25.8	33 697	0.02
CHL	Chile	54	5 084 038	2 504.1	2 444	0.1	15	7 007 620	454.9	106 885	1.0
CZE	Czech Republic	14	1 279 345	2 558.0	303 165	66.1	8	1 678 250	2 558.0	1 131 191	70.8
DNK	Denmark	11	839 710	4 216.2	41 406	59.6	5	1 714 589	673.4	579 996	73.7
EST	Estonia	5	529 898	122.3	139 214	14.4	1	1 339 662	30.8	1 339 662	30.8
FIN	Finland	19	1 549 058	170.3	28 354	2.0	5	1 549 058	170.3	28 354	6.4
FRA	France	96	2 584 126	21 521.0	78 535	15.2	22	11 914 812	991.9	316 578	36.5
DEU	Germany	96	3 501 872	3 944.9	208 620	44.2	16	17 841 956	3 944.9	661 301	70.5
GRC	Greece	13	4 109 074	1 079.6	198 978	31.5	4	4 109 074	1 079.6	1 126 201	46.3
HUN	Hungary	20	1 740 041	3 313.7	198 933	52.3	7	2 985 089	431.6	933 873	65.9
ISL	Iceland	8	203 594	195.3	6 955	0.5	2	203 594	195.3	115 981	1.1
IRL	Ireland	8	1 262 568	1 376.8	286 168	32.2	2	3 346 268	92.2	1 236 501	38.5
ISR	Israel	–	–	–	–	–	6	1 894 400	7 529.1	926 700	79.1
ITA	Italy	110	4 233 933	2 649.2	57 989	31.4	21	9 992 548	438.3	128 672	39.7
JPN	Japan	47	13 230 000	6 908.6	582 000	65.4	10	35 704 000	2 723.0	3 932 000	65.4
KOR	Korea	16	11 936 855	16 475.4	558 702	90.7	7	24 706 024	2 110.7	558 702	90.7
LUX	Luxembourg	1	524 853	203.0	524 853	203.0	1	524 853	203.0	524 853	203.0
MEX	Mexico	209	8 360 233	7 525.0	9 167	0.8	32	15 175 862	5 964.3	637 026	8.6
NLD	Netherlands	12	3 552 407	1 262.1	381 407	185.8	4	7 880 753	910.2	1 718 896	206.7
NZL	New Zealand	14	1 507 600	336.9	32 900	1.4	2	3 394 000	29.8	1 038 500	6.9
NOR	Norway	19	613 285	1 436.3	73 787	1.6	7	1 169 539	231.7	379 938	4.4
POL	Poland	66	1 708 491	3 304.6	278 627	44.7	16	5 285 604	375.1	1 013 950	59.5
PRT	Portugal	30	2 044 636	1 577.2	40 308	14.7	7	3 679 416	940.7	247 066	23.9
SVK	Slovak Republic	8	815 806	295.5	555 509	69.8	4	1 839 259	295.5	606 537	83.0
SVN	Slovenia	12	536 484	210.7	43 926	36.5	2	1 084 296	121.0	971 200	89.5
ESP	Spain	59	6 387 824	5 701.7	10 560	9.0	19	8 286 382	5 701.7	76 403	26.0
SWE	Sweden	21	2 091 473	320.8	57 308	2.5	8	2 091 473	320.8	368 454	3.3
CHE	Switzerland	26	1 392 396	5 033.9	15 743	27.2	7	1 770 429	838.3	336 943	98.5
TUR	Turkey	81	13 624 240	2 622.0	76 724	11.4	26	13 624 240	2 622.0	739 997	26.4
GBR	United Kingdom	139	2 082 098	10 353.5	20 212	7.1	12	8 665 938	5 175.4	1 814 842	67.6
USA	United States	179	23 438 892	608.0	81 140	0.5	51	38 041 430	3 976.9	576 412	0.5

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**Table A.4. Percentage of national population living in predominantly urban, intermediate and predominantly rural regions (TL3) and number of regions classified as such in each country**

	Percentage of population (2012)			Number of regions (TL3)		
	Rural (%)	Intermediate (%)	Urban (%)	Rural	Intermediate	Urban
Australia	21.3	21.0	57.7	41	13	6
Australia (NOG)	-	-	-	6	7	17
Austria	45.1	31.0	23.9	25	8	2
Belgium	2.5	14.2	83.3	1	2	8
Canada	27.6	16.0	56.4	223	35	30
Chile	36.4	14.5	49.1	41	7	6
Czech Republic	4.9	83.3	11.8	1	12	1
Denmark	42.0	28.0	30.0	5	3	3
Estonia	10.4	77.2	12.4	1	3	1
Finland	59.3	12.0	28.7	16	2	1
France	17.0	48.3	34.7	36	46	14
Germany	17.5	25.4	57.1	31	30	35
Greece	39.8	23.8	36.4	10	2	1
Hungary	40.1	42.4	17.5	11	8	1
Iceland	36.2	63.8	0.0	7	1	
Ireland	72.4	0.0	27.6	7		1
Italy	9.1	38.1	52.8	23	52	35
Japan	12.1	31.5	56.3	13	22	12
Korea	17.2	13.2	69.6	5	3	8
Luxembourg	100.0				1	
Mexico	38.0	15.7	46.3	145	30	34
Netherlands	0.0	14.9	85.1	0	5	7
New Zealand	0.0	54.9	45.1	0	12	2
Norway	47.1	40.6	12.3	13	5	1
Poland	46.7	31.2	22.1	34	20	12
Portugal	20.3	26.9	52.8	15	8	7
Slovak Republic	25.0	63.8	11.2	2	5	1
Slovenia	56.4	43.6	0.0	8	4	
Spain	13.4	38.5	48.1	22	25	12
Sweden	48.0	30.0	22.1	18	2	1
Switzerland	8.9	49.6	41.5	7	12	7
Turkey	25.0	23.4	51.6	45	23	13
United Kingdom	2.0	28.0	70.0	11	41	87
United States	37.7	20.3	42.1	132	21	26


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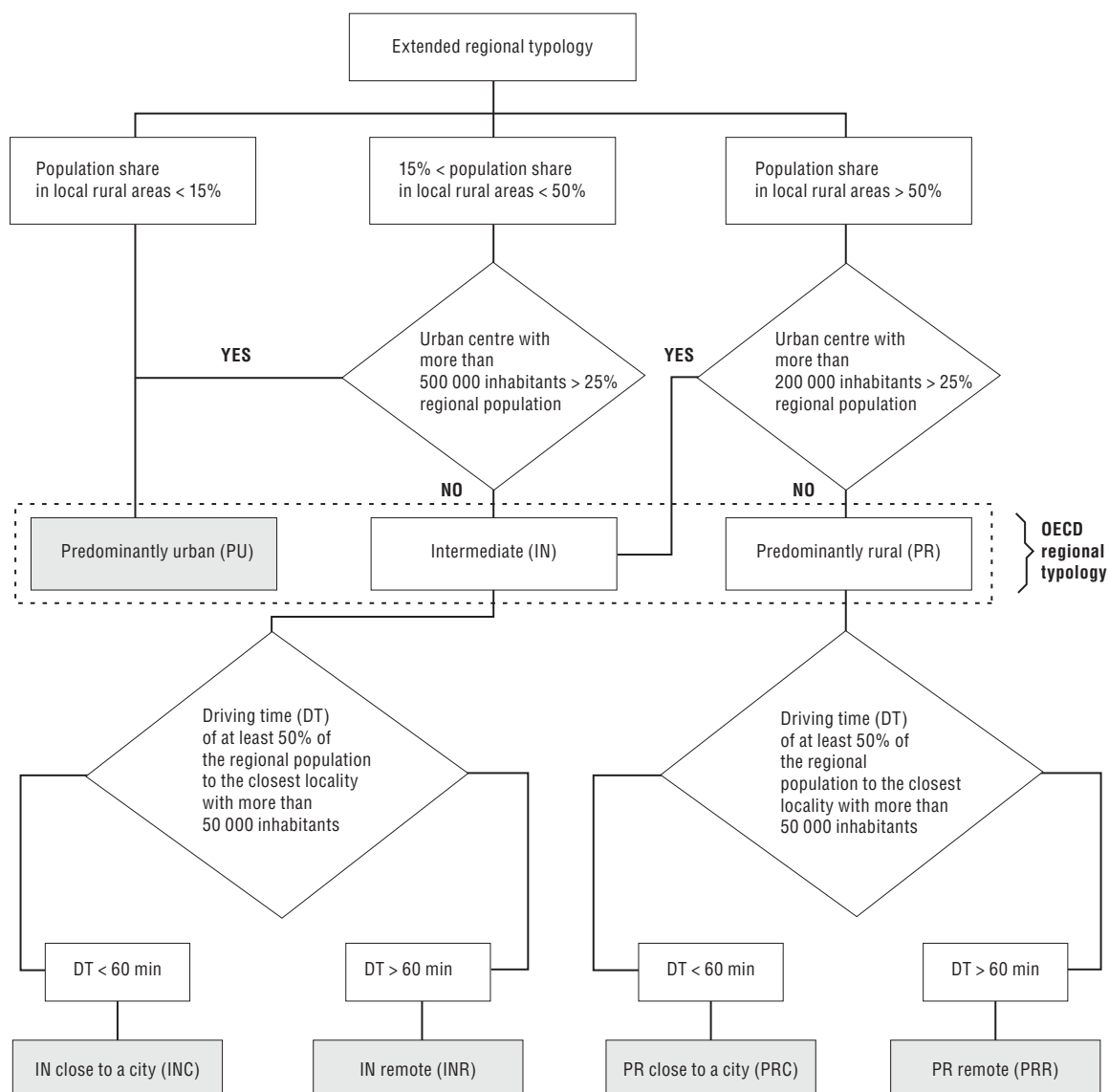
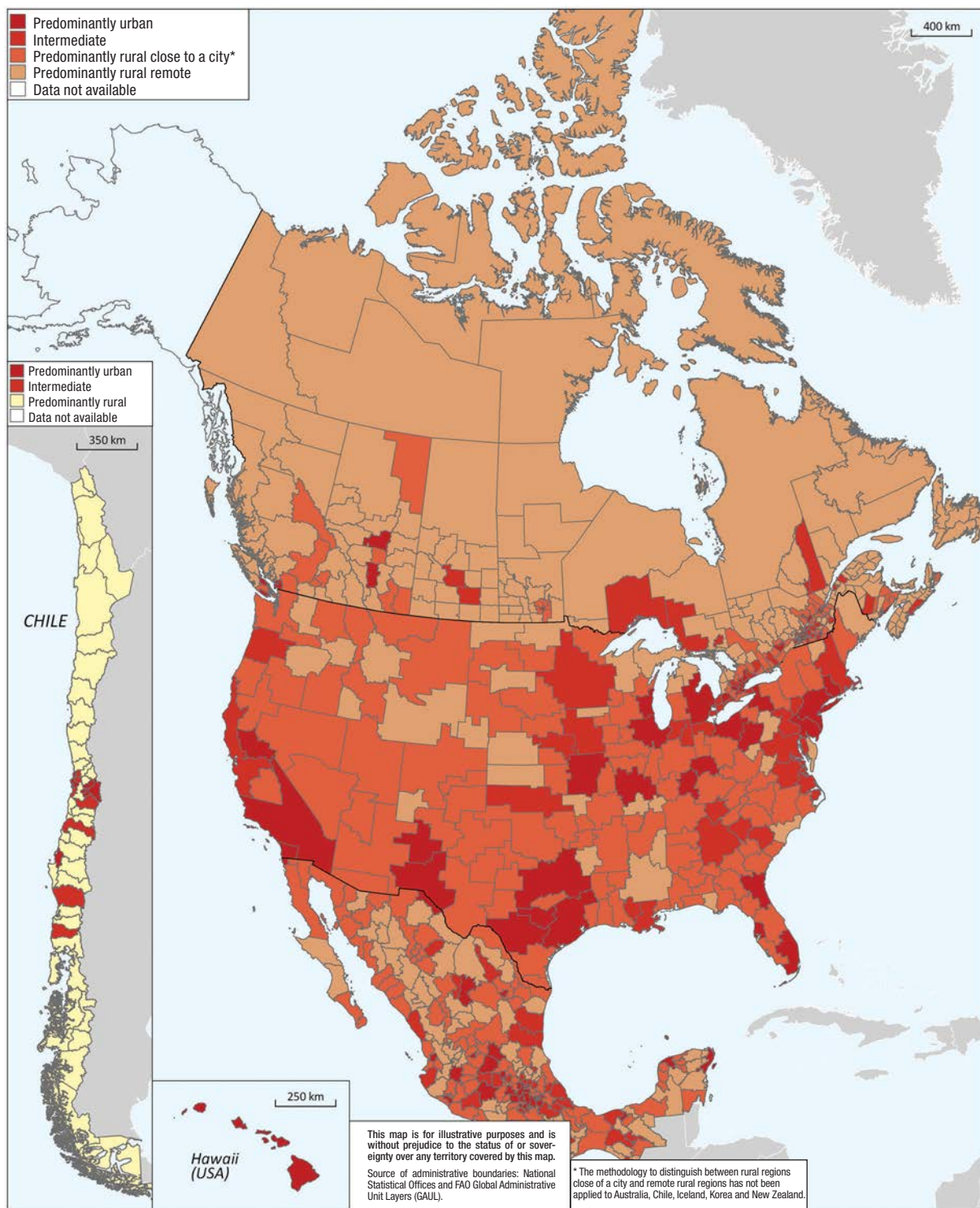
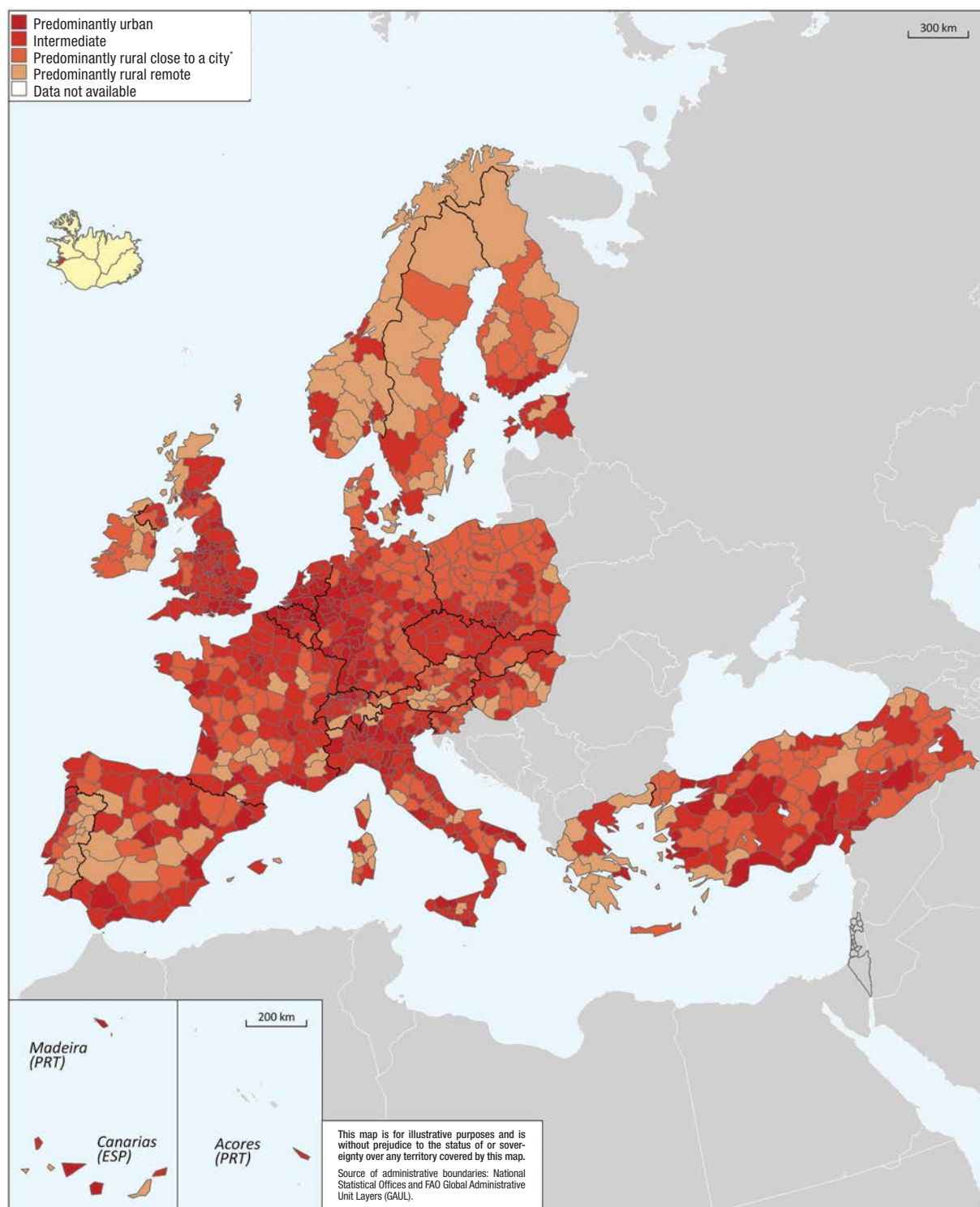
Figure A.1. **Methodology to define the extended regional typology**

Figure A.2. **Extended regional typology: Americas (TL3)**



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Figure A.3. **Extended regional typology: Europe (TL3)**


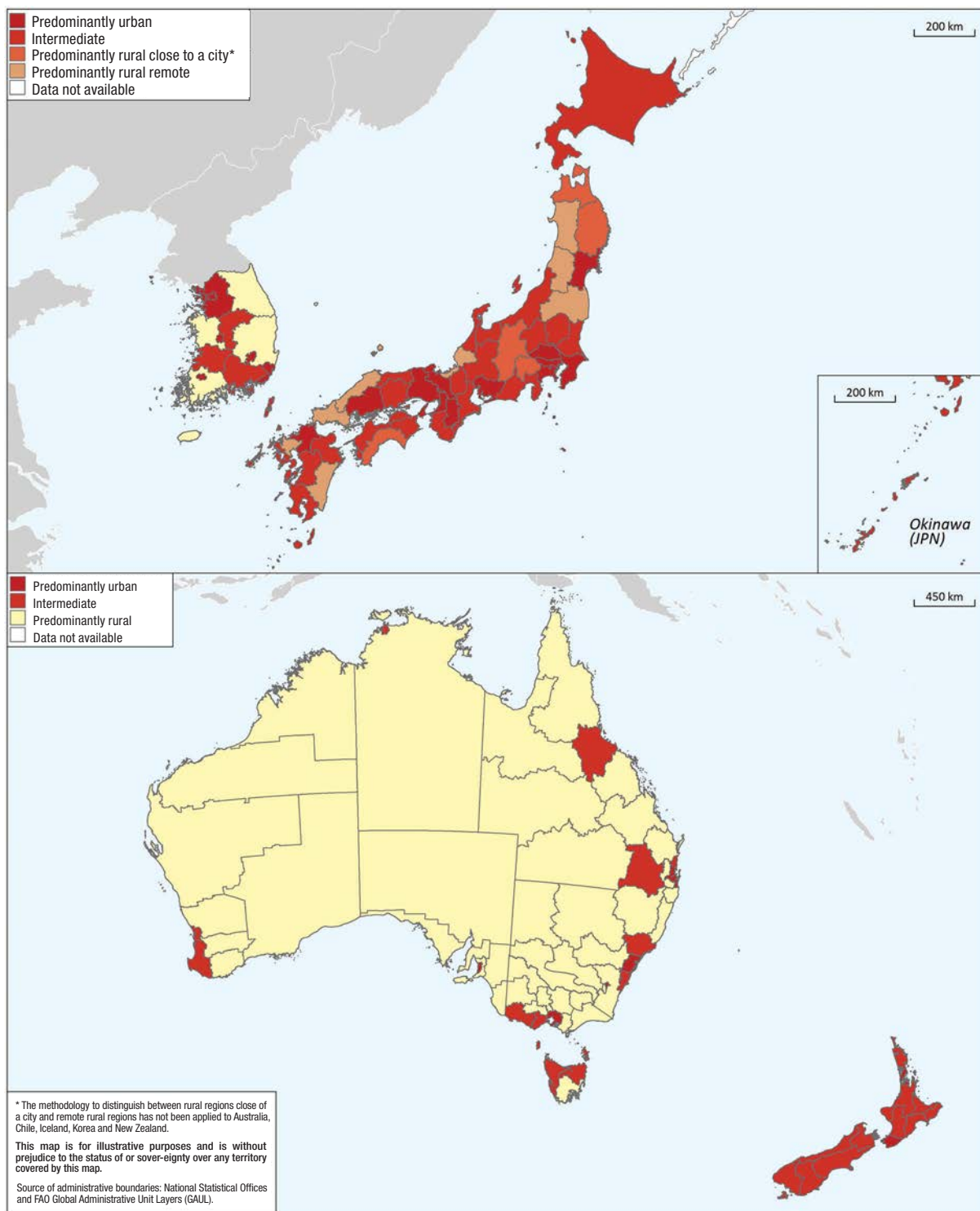
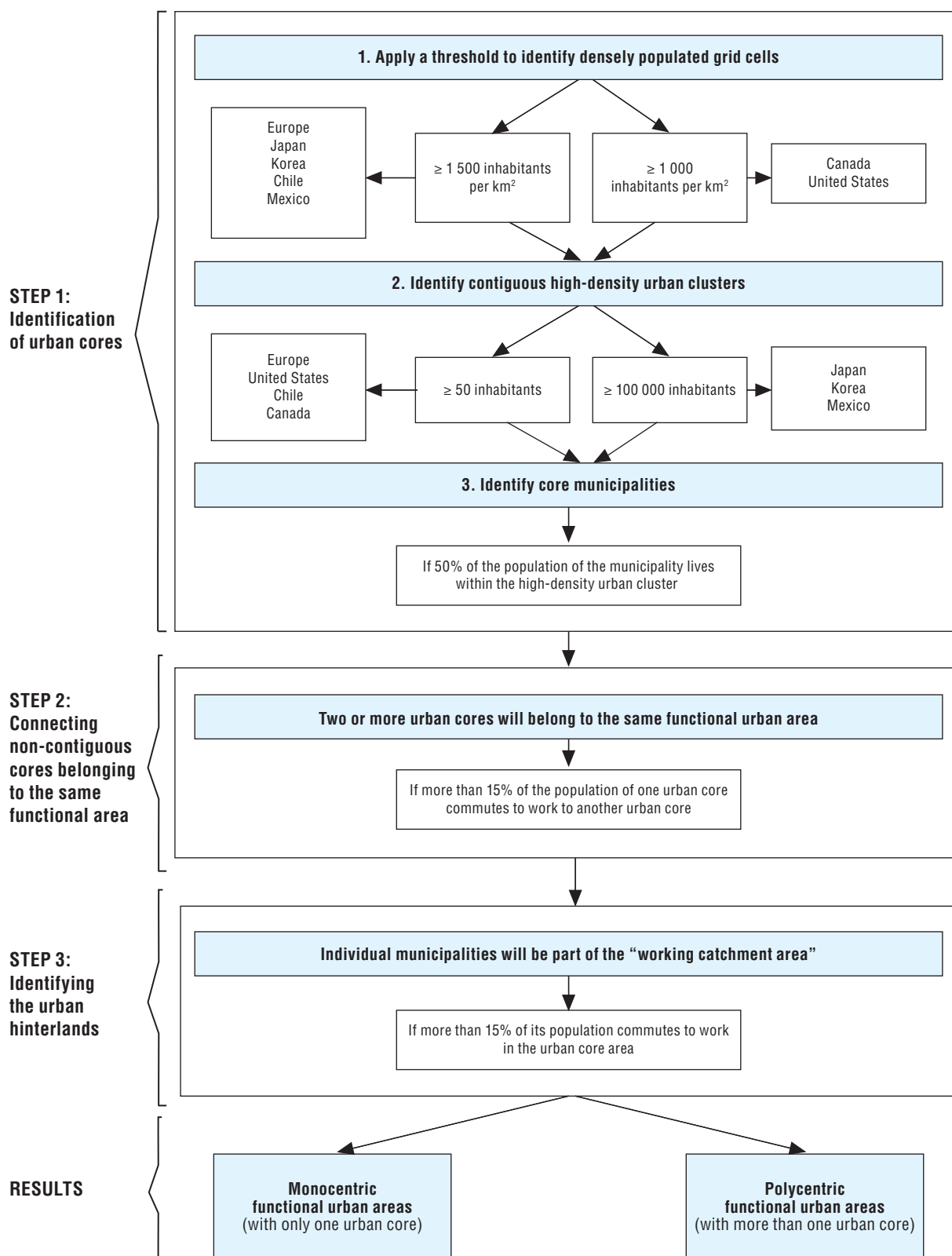
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Figure A.4. **Extended regional typology: Asia and Oceania (TL3)**




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Figure A.5. **Methodology to define the functional urban areas**

**Table A.5. Number of functional urban areas and share of national population in urban areas**

	FUA with population between 50 000 and 200 000		FUA with population between 200 000 and 500 000		FUA with population between 500 000 and 1.5 million		FUA with population above 1.5 million	
	Number	% of national population	Number	% of national population	Number	% of national population	Number	% of national population
Austria	–	–	3	10.59	2	14.14	1	30.37
Belgium	3	4.61	4	10.63	3	21.63	1	22.00
Canada	15	6.21	10	10.37	6	16.66	3	35.69
Chile	17	14.16	5	9.56	2	10.79	1	37.66
Czech Republic	11	13.11	2	4.80	2	11.74	1	16.49
Denmark	0	0.00	3	18.53	–	–	1	35.63
Estonia	2	15.79	–	–	1	39.12	–	–
Finland	4	11.98	2	12.09	1	26.08	–	–
France	39	9.50	29	15.18	12	15.09	3	23.67
Germany	36	6.32	49	19.21	18	18.47	6	19.56
Greece	6	6.93	1	1.95	1	8.62	1	33.42
Hungary	2	2.78	7	18.70	–	–	1	27.47
Italy	42	9.91	21	10.53	7	8.38	4	22.42
Japan	6	0.76	34	9.02	30	16.96	6	48.58
Korea	22	5.07	12	7.45	7	13.62	3	55.43
Luxembourg	–	–	1	87.01	–	–	–	–
Mexico	19	2.81	30	9.51	24	19.14	4	25.61
Netherlands	19	15.91	11	20.95	4	22.00	1	13.47
Norway	2	4.19	3	16.90	1	23.66	–	–
Poland	34	11.29	16	13.91	6	15.17	2	14.62
Portugal	8	8.64	3	6.87	1	12.27	1	25.44
Slovak Republic	6	17.10	1	6.83	1	12.82	–	–
Slovenia	0	0.00	1	11.59	1	26.66	–	–
Spain	45	13.22	22	17.37	6	13.76	2	21.46
Sweden	8	13.54	1	2.52	2	16.08	1	20.60
Switzerland	4	8.15	3	13.32	3	34.80	–	–
United Kingdom	42	10.21	45	23.72	11	14.74	3	23.71
United States	103	4.72	89	10.03	39	12.10	28	39.20

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