Reader's guide

Regions and Cities at a Glance 2020 provides a comprehensive assessment of how regions and cities across the OECD are progressing in their efforts to build stronger, more sustainable and more resilient economies and societies. The publication provides a unique comparative picture in a number of aspects connected to economic development, health, well-being and net zero-carbon transition across regions and cities in OECD and selected non-OECD-member countries. In the light of the health crisis caused by the COVID-19 pandemic, the report analyses outcomes and drivers of social, economic and environmental resilience for regions and cities. More specifically, Chapter 1 reports differences in factors and outcomes to assess how regions are advancing towards resilient societies. The subnational indicators considered in the chapter include excess mortality, hospital beds per capita and air quality, among others.

Chapter 2 provides an assessment of regional economic disparities and the capacity of regions and cities to build resilient economies and thriving businesses. More specifically, this chapter starts by documenting regional differences in the share of jobs amenable to remote working and the availability of digital infrastructure. The chapter also analyses long-term economic disparities by looking at regional differences in gross domestic product (GDP) per capita, productivity and entrepreneurship. The contribution of metropolitan areas in the national economies is also assessed in this chapter.

Chapter 3 analyses how regions and cities are contributing to the transition to a zero-carbon economy and sustainable development. The indicators presented in the chapter cover a wide range of topics, including trends in land consumption and tree cover loss, biodiversity and ecosystem protection, household energy consumption, as well as the sources for electricity production and related carbon emissions.

Chapter 4 documents how demographic change, ageing and urbanisation are affecting regions and cities in OECD countries and beyond. The chapter also includes population projections for cities of different sizes, as well as an analysis of recent trends in urban expansion, densification and suburbanisation of metropolitan areas.

Finally, Chapter 5 provides an update on subnational government spending and investment. In addition, the chapter provides new disaggregated figures on expenditure and investment of regional governments for EU and OECD countries, as well as on municipal governments in 26 European and OECD countries.

Throughout the publication, regional disparities in different domains are looked at through two lenses: the distribution of resources and the persistence of disparities across regions and cities over space and time. More precisely:

- Distribution of resources over space is assessed by looking at the proportion of a certain national variable concentrated in a limited number of regions, corresponding to 20% of the national population and the extent to which specific regions contribute to the national change of that variable. For example, regional convergence in GDP per worker, measured by the annual growth rates in the bottom and top 20% of regions, only occurred in 15 out of 33 OECD countries between 2008 and 2018. Metropolitan areas of at least half a million inhabitants have contributed on average to 52% of total GDP growth between 2000 and 2018.

- The report proposes several approaches to measure regional disparities. A first, simple approach is the difference between the maximum and minimum regional values in a country (regional range). A second approach consists of ranking regions by the value of an indicator and taking the ratio (or the difference) between the highest value representing 20% (or 10%) of the population and the lowest value of the regions representing 20% (or 10%) of the population. This approach is less sensitive to possible outliers and cross-country differences in the size of regions. A third approach consists of using standard composite indexes, such as the Theil general entropy index,[1] or the Gini index, which reflect inequality among all regions.

Geographic areas utilised

This publication features statistical indicators at three different scales, which are administrative regions, functional urban areas (FUAs) composed of local units, and areas defined from grid cells of regular size.

The table below summarises the different geographic areas for which the publication reports indicators. Each type of geographic areas is associated with an icon reported in the charts and maps of the publication in order to facilitate the interpretation of the indicators.

Category	Icon	Description
Administrative subnational regions	TL2	Large region (Territorial Level 2)
	TL3	Small region (Territorial Level 3)
Functional aggregations of local units	FUA	FUA (based on local units, OECD coverage)
Grid-cell areas	eFUA	Grid-based FUAs (world coverage)
	Cities	Cities (world coverage)

Administrative regions

Traditionally, regional policy analysis has used data collected for administrative regions, that is, the regional boundaries within a country as organised by governments. Data on administrative regions has also the advantage of referring to areas that are often under the responsibility of a certain subnational government or to the scale targeted by a specific policy implemented at the national or subnational level. Regions are classified into two scales: large regions (Territorial Level 2, TL2) and small regions (Territorial Level 3, TL3), which ensure comparability across countries.

Functional urban areas (FUAs) composed of local administrative units

The places where people live, work and socialise may have little formal relation to the administrative units around them. For example, a person may inhabit one city or region but work in another and, on the weekends, practice a sport in a third. A broad set of linkages, such as job mobility, production systems or collaboration among firms, determines the interactions occurring between regions. Such interactions often cross local administrative boundaries.

In order to capture the above-mentioned interactions, the report uses the FUA definition, which was developed by the European Commission (EC) and the OECD[2] (see the section below). Boundaries of FUAs are available in practically all OECD countries. Being composed of a city and its commuting zone, FUAs encompass the economic and functional extent of cities, based on people's daily

movements. Especially in the case of cities, the notion of FUA can better guide the way national and city governments plan infrastructure, transportation, housing, schools and space for culture and recreation. In summary, FUAs can trigger a change in the way policies are designed and implemented, better integrating and adapting them to local needs.

Areas defined from grid cells of regular size

Some sections of the publications, including urbanisation, air pollution, built-up areas and population density, cover the entire world. In these cases, the geographic areas utilised to report indicators are delineated from gridded data available at regularly sized cells rather than at local administrative units.

More specifically, grid cells of one km^2 are used to estimate the boundaries of cities and FUAs across the entire world. Cities are defined – according to the degree of urbanisation[3] – as clusters of contiguous cells with at least 1 500 inhabitants per km^2 and at least 50 000 inhabitants overall. Grid-based FUAs are composed of cities plus surrounding cells that are estimated to be in their commuting zones, based on a probabilistic model.[4] While this method is less direct than the use of commuting flow data to determine the areas of influence of cities, it can be consistently applied to the entire world while maximising international comparability.

Definition of metropolitan areas

The EU-OECD definition of FUAs consists of cities (local units where at least half of the population lives in clusters of densely populated grid cells with at least 50 000 inhabitants) and adjacent local units with high levels of commuting (travel-to-work flows) towards the cities. This definition overcomes previous limitations for international comparability of city and metropolitan statistics linked to administrative boundaries. A minimum threshold for the population size of the FUAs is set at 50 000. The definition is applied to 34 OECD countries and it identifies approximately 1 200 FUAs of different sizes. It should be noted that, due to the lack of commuting data, FUAs are not identified in Israel, New Zealand or Turkey.

The aim of this approach to FUAs is to create a methodology that can be applied across all OECD member countries, thus increasing comparability across countries, unlike definitions and methodologies created within individual countries, which have been internally focused.[5] In order to establish this cross-country methodology, common thresholds and similar geographical units across countries were defined. These units and thresholds may not correspond to the ones chosen in the national definitions. Therefore, the resulting FUAs may differ from the ones derived from national definitions and, in addition, the OECD functional urban delimitation may not capture all of the local factors and dynamics in the same way as national definitions.

This publication includes indicators on metropolitan areas, which are defined as FUAs with a population greater than 250 000. Due to data availability limitations, some indicators (i.e. GDP, employment) are reported only for FUAs of at least 500 000 inhabitants.

Classifications of regions and areas

Territorial level classification

Regions within the 37 OECD countries are classified on 2 territorial levels reflecting the administrative organisation of countries. The 427 OECD large (TL2) regions represent the first administrative tier of subnational government, for example, the Ontario Province in Canada. There are 2 290 OECD small (TL3) regions, with each TL3 being contained in a TL2 region (except for the United States). For example, the TL2 region of Aragon in Spain encompasses three TL3 regions: Huesca, Teruel and Zaragoza. TL3 regions correspond to administrative regions, with the exception of Australia, Canada, Germany and the United States.[6] All the regions are defined within national borders.

This classification – which, for European countries, is largely consistent with the Eurostat NUTS 2016 classification – facilitates greater comparability of geographic units at the same territorial level.[7] 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.

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, they are labelled – for the sake of simplicity – as non-official grids (NOGs) in this publication and compared with TL3 in the other countries. Germany also has a NOG category with the 96 spatial planning regions, an intermediate level between the 16 *Länder* (TL2) and the 401 *Kreise* (TL3). German NOGs allow for a level of spatial disaggregation comparable to the other countries.

For the non-OECD member countries in this report, only TL2 regions have been identified for Brazil, the People's Republic of China, Colombia, India, Peru, the Russian Federation, South Africa and Tunisia, whereas for Bulgaria and Romania, TL2 and TL3 are derived from the European nomenclature of territorial units for statistics (NUTS).

Classification of small regions by access to metropolitan areas

The OECD metropolitan/non-metropolitan typology for small regions (TL3) helps to assess differences in socio-economic trends in regions – both within and across countries – by controlling for the presence/absence of metropolitan areas and the extent to which the latter is accessible by the population living in each region. According to such typology, TL3 regions are classified as *metropolitan* if more than half of their population lives in an FUA of at least 250 000 inhabitants and as *non-metropolitan* otherwise. A metropolitan region becomes a *large metropolitan region* if the FUA accounting for more than half of the regional population has over 1.5 million inhabitants.

In turn, the typology further classifies non-metropolitan regions based on the size of the FUA that is most accessible to the regional population. More specifically, non-metropolitan TL3 regions are sub-classified into three possible types:

1. With access to a metropolitan area, if at least half of the regional population can reach an FUA of at least 250 000 inhabitants within a 60-minute car ride.
2. With access to a small/medium city, if at least half of the regional population can reach an FUA between 50 000 and 250 000 inhabitants within a 60-minute car ride.
3. Remote, if reaching the closest FUA by car takes more than 60 minutes for more than half of the regional population.

The method relies on publicly available grid-level population data and localised information on driving conditions.[8]

In this report, the five types of regions identified are sometimes aggregated to three classes only, as indicated in the table below.

Acronym	Grouping	Reduced grouping
MR-L	Large metropolitan region	Metropolitan region
MR-M	Metropolitan region	
NM-M	Region near a metropolitan area	Region near a metropolitan area
NM-S	Region with/near a small-medium city	Region far from a metropolitan area
NM-R	Remote region	

Classification of small regions by degree of urbanisation

Traditionally, the OECD has classified TL3 regions as predominantly urban (PU), intermediate (IN) or predominantly rural (PR) regions. This typology is mainly based on population density in each local unit, combined with the existence of urban centres where at least one-quarter of the regional population reside. 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, introducing a criterion of distance (driving time) to cities.[9] According to such an extended typology, a predominantly rural region is classified as predominantly rural remote (PRR) if at least 50% of the regional population needs more than 1 hour to reach a city; otherwise, the rural region is classified as predominantly rural close to a city (PRC). The result is a fourfold classification of TL3 regions: predominantly urban (PU), intermediate regions (IN), predominantly rural regions close to a city (PRC) and predominantly rural remote (PRR) regions. The distance from urban centres is measured by the driving time necessary for a certain share of the regional population to reach an urban centre with at least 50 000 people (see Figure A.1 in Annex A for a detailed description of the criteria and the resulting classification of TL3 regions). Due to a lack of data, the extended typology has not been applied yet to Australia, Chile or Korea. In 2014, the European Union (EU) modified the rural-urban typology, using 1-km^2 population grids as building blocks to identify rural or urban communities, with the aim of improving international comparability; for EU-OECD countries, this rural-urban typology is presented in the publication.

Sources of data for territorial statistics

OECD Regions and Cities at a Glance 2020 includes a selection of indicators from the OECD Regional Database, the OECD Metropolitan Database and the OECD Subnational Government Finance Database. In addition, some sections of the report provide, for the first time, comparable indicators on population, built-up areas, air quality and density of all cities and FUAs in the world. The latter indicators rely on the global, grid-based FUA boundaries defined by the OECD and the EC's Joint Research Centre.[10]

The report also presents new, modelled indicators on electricity production in regions and cities of OECD countries, distinguishing by types of sources. Estimates rely on the Global Power Plants Database.[11]

Most of the indicators presented in the publication refer to TL2 and TL3 regions and come from official national sources, following internationally consistent methods for cross-country comparability. At the same time, regional and local data are increasingly available from a variety of sources: surveys, geocoded data, administrative records, big data and data produced by users. While countries are making use of the various sources to produce and analyse data at different geographic levels, significant methodological constraints still exist, making it a challenge to produce sound, internationally comparable statistics linked to a location. The trade-off between sound methodological estimations and international comparability should always be considered, as the latter depends on information that is universally available.

Most of the indicators for FUAs are derived by integrating different sources of data, making use of geographic information systems (GIS) and adjusting existing regional data to non-administrative boundaries. Two types of methods to obtain estimates at the desired geographical level are applied, both requiring the use of GIS tools to disaggregate socio-economic data. The first method makes use of gridded data at different resolutions, which are always smaller than the considered regions. The statistics for one region are obtained by superimposing the source data onto regional boundaries. In these cases, the regional value is either the sum or the weighted average of the values observed in the source data within the (approximated) area delimited by the regional boundaries. For example, this method has been applied to estimated air pollution (population-weighted average of $PM_{2.5}$ levels) in metropolitan areas and TL2 regions.

The second method makes use of GIS tools to adjust or downscale data, available only at geographical levels that are similar or even larger than the geographical units of interest. In this case, the adopted method uses additional data (e.g. population) inputs that capture how the phenomenon under study is distributed across space. With this method, GDP and employment have been estimated in FUAs over half a million inhabitants, when those statistics were not already provided by official sources (see Annex C for details on the methods to estimate indicators for metropolitan areas).

Chapter 5 data refer to subnational governments, as classified according to general government data from OECD National Accounts. Subnational governments are defined as the set of states (relevant only for countries with a federal or quasi-federal system of government) and local (regional and local) governments.

Further resources

The different topics are visualised through interactive graphs and maps in the *OECD Regions and Cities Data Visualisation* platform, available at *https://regions-cities-atlas.oecd.org/*. Users can select from among all of the indicators included in the OECD Regional and Metropolitan databases and display them in different linked dynamic views such as maps, time trends and histograms. The website also provides access to the data underlying the indicators.

Another web tool (*https://www.oecd-local-sdgs.org/*) provides easy access to monitor the distance to the end values of the 17 UN Sustainable Development Goals (SDGs) for regions and cities in OECD and partner countries. The tool also compares the performance with other regions and cities in their respective country and helps identify peers in other countries.

The interactive web-based tool OECD Regional Well-Being (*www.oecdregionalwellbeing.org/*) allows users to measure well-being in each region, compare it against 402 other OECD regions and monitor progress over time. Each region is assessed in 11 areas central to quality of life: income, jobs, health, access to services, the environment, education, safety, civic engagement, housing, social support network and life satisfaction.

The cut-off date for data included in this publication was August 2020. Due to the time lag of subnational statistics, the last available year is generally 2019 for demographic and labour market, 2018 for subnational finance data and 2017 for entrepreneurship, innovation statistics and social statistics in metropolitan areas. The latest point in time for the reference of the excess mortality indicators is June 2020.

Abbreviations and acronyms

	Description
Australia (TL2)	TL2 regions of Australia
Australia (TL3)	TL3 regions of Australia
COFOG	Classification of the Functions of Government
GDP	Gross domestic product
FUA	Functional urban areas
IN	Intermediate (region)
LFS	Labour force survey
NEET	Adults neither employed nor in education or training
NOG	Non-official grid
OECD#	The sum of all the OECD regions where regional data are available (# number of countries included in the sum)
OECD# average	The weighted mean of the OECD regional values (# number of countries included in the average)
OECD#UWA	The unweighted mean of the country values (# number of countries included in the average)
$PM_{2.5}$	Particulate matter 2.5 (concentration of fine particles in the air)
PPP	Purchasing power parity
PR	Predominantly rural (region)
PRC	Predominantly rural (region) close to a city
PRR	Predominantly rural remote (region)
PU	Predominantly urban (region)
R&D	Research and development
SNG	Subnational government
TL2	Territorial level 2
TL3	Territorial level 3
Total # countries	The sum of all regions where regional data are available, including OECD and non-OECD countries

OECD country ISO codes

Code	Country	Code	Country
AUS	Australia	ISR	Israel
AUT	Austria	ITA	Italy
BEL	Belgium	JPN	Japan
CAN	Canada	KOR	Korea
CHE	Switzerland	LUX	Luxembourg
CHL	Chile	LVA	Latvia
COL	Colombia	LTU	Lithuania
CZE	Czech Republic	MEX	Mexico
DEU	Germany	NLD	Netherlands
DNK	Denmark	NOR	Norway
ESP	Spain	NZL	New Zealand
EST	Estonia	POL	Poland
FIN	Finland	PRT	Portugal
FRA	France	SVK	Slovak Republic
GBR	United Kingdom	SVN	Slovenia
GRC	Greece	SWE	Sweden
HUN	Hungary	TUR	Turkey
IRL	Ireland	USA	United States
ISL	Iceland		

Other countries ISO codes

Code	Country	Code	Country
BRA	Brazil	PER	Peru
BGR	Bulgaria	ROU	Romania
CHN	China, People's Republic of	RUS	Russian Federation
CRI	Costa Rica	TUN	Tunisia
IND	India	ZAF	South Africa

Notes

1. With the α coefficient equal to 1.
2. See Dijkstra, L., H. Poelman and P. Veneri (2019), "The EU-OECD definition of a functional urban area", *OECD Regional Development Working Papers*, No. 2019/11, OECD Publishing, Paris, *https://doi.org/10.1787/d58cb34d-en*. See also the "Definition of metropolitan areas" section.
3. For more details on the degree of urbanisation, see *https://ec.europa.eu/eurostat/web/degree-of-urbanisation/background*.
4. Moreno-Monroy, A., M. Schiavina and P. Veneri (2020), "Metropolitan areas in the world. Delineation and population trends", *Journal of Urban Economics*, *http://dx.doi.org/10.1016/j.jue.2020.103242*.
5. Some OECD countries have adopted a definition for their own metropolitan areas or urban systems that looks beyond the administrative approach. For example, Australia, Canada and the United States use a functional approach, similar to the one adopted here, to identify metropolitan areas. Several independent research institutions and national statistical offices have identified metropolitan regions in Italy, Mexico, Spain and the United Kingdom based on the functional approach.
6. The United States TL3 regions are based on the U.S. Bureau of Economic Analysis economic areas. For the latest information on the methodology, please refer to: *https://apps.bea.gov/scb/pdf/2004/11November/1104Econ-Areas.pdf* .
7. For European countries, the Eurostat NUTS 2 and 3 classifications correspond to the OECD TL2 and 3, with the exception of Belgium, France, Germany and the United Kingdom where the NUTS 1 level corresponds to the OECD TL2.
8. Details on the method can be found in: Fadic, M. et al. (2019), "Classifying small (TL3) regions based on metropolitan population, low density and remoteness", *OECD Regional Development Working Papers*, No. 2019/06, OECD Publishing, Paris, *https://doi.org/10.1787/b902cc00-en*.
9. Brezzi, M., L. Dijkstra and V. Ruiz (2011), "OECD Extended Regional Typology: The Economic Performance of Remote Rural Regions", *OECD Regional Development Working Papers*, No. 2011/06, OECD Publishing, Paris, *http://dx.doi.org/10.1787/5kg6z83tw7f4-en*.
10. Schiavina, M. et al. (2019), *GHS-FUA R2019A - GHS functional urban areas, derived from GHS-UCDB R2019A (2015) (dataset)*, European Commission, Joint Research Centre (JRC), *http://data.europa.eu/89h/347f0337-f2da-4592-87b3-e25975ec2c95*.
11. *https://datasets.wri.org/dataset/globalpowerplantdatabase*.