Reader's guide

OECD Regions and Cities at a Glance 2022 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, well-being, demographic change and environmental transition across regions and cities in OECD and selected non-OECD countries. The report assesses how regions and cities are adapting differently to the challenges of a strong recovery after the COVID-19 pandemic, the increasing pressure for energy transition and for ensuring affordable costs of living. The report focuses on the spatially heterogeneous effects of the COVID-19 pandemic as well as of those triggered by ongoing megatrends, such as urbanisation, digitalisation and demographic change.

The report is composed of four chapters, each with a specific thematic focus. Chapter 1 assesses economic performance across regions during the COVID-19 pandemic and subsequent recovery. It also describes longer-run trends in regional economic disparities within OECD countries. Indicators presented in the chapter include quarterly employment and unemployment, gross domestic product (GDP) per capita, productivity levels and growth, tourism, cultural industries, and trade and integration in global markets.

Chapter 2 examines progress on the environmental transition of regions through a wide range of indicators, including energy use, emissions by sector and exposure to extreme climate events. The chapter shows that, while most OECD countries aim for climate neutrality by 2050, progress is uneven between and within countries, with some regions still heavily relying on carbon-intensive energy sources.

Chapter 3 presents an overview of socio-demographic trends in regions and cities across OECD countries. It discusses how the projection of population trends, ageing and urbanisation are playing out in regions and cities. The chapter presents indicators on elderly dependency rate, within-country residential mobility, population growth and decline, as well as new evidence on the presence of migrants in OECD regions and their integration in regional labour markets.

Chapter 4 presents key aspects of inclusion and liveability in regions and cities, such as housing affordability, income inequalities and quality of the Internet connection. The chapter also assesses the health system's capacity, poverty and access to services. It highlights how regions and cities adapted differently from the shock of the COVID-19 pandemic with respect to remote working, digitalisation and housing demand.

Throughout the publication, regional disparities in different domains are looked at through the persistence of disparities across regions and cities over space and time. More precisely, 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% of the population and the lowest value

of the regions representing 20% of the population. This approach assesses regional disparities 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. One advantage of the Theil index is that it allows to distinguish overall regional disparities in within-country and between-country components.

- A fourth approach consists of summarising spatial disparities by type of territory. This includes using the degree of urbanisation or the OECD classifications of small administrative regions (Territorial Level 3, TL3), such as distinguishing between metropolitan regions, regions close to a metropolitan area and regions far from a metropolitan area.

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.

Category	Description
Administrative subnational regions	Large region (Territorial Level 2) Small region (Territorial Level 3)
Functional aggregations of local units	Functional urban area (based on local units, OECD coverage) Cities (based on local units, OECD coverage)
Grid-cell areas	Grid-based functional urban area (world coverage) Cities (world coverage)

Administrative regions

Traditionally, regional 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 to refer 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 in two scales: large regions (Territorial Level 2, TL2) and small regions (Territorial Level 3, TL3), which ensure comparability across countries.

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 or Dijkstra et al., 2019).[3] 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 daily people's 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 planned and implemented, better integrating and adapting them to local needs.

Areas defined from grid cells of regular size

Some sections of the publications, including land use, access to public transport and built-up areas, refer to geographic areas delineated from gridded data available at regularly sized cells rather than at local administrative units.

More specifically, grid cells of one km² are used to estimate the boundaries of cities and FUAs across the entire world. Cities are defined – according to the degree of urbanisation[4] – as clusters of contiguous cells with at least 1 500 inhabitants per km² 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 explained in Moreno-Monroy, Schiavina and Veneri (2020).[5] 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

In this report, the concept of FUAs is used to define metropolitan areas. The OECD-EU 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 inhabitants. The definition is applied to nearly all OECD countries and it identifies about 1 200 FUAs of different sizes.[6]

The aim of this approach to FUAs is to create a methodology that can be applied across the whole OECD, thus increasing comparability across countries, unlike definitions and methodologies created within individual countries, which have been internally focused.[7] 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 the OECD functional urban delimitation may not capture all the local factors and dynamics in the same way as national definitions.

Classifications of regions and areas

Territorial level classification

Regions within the 38 OECD countries are classified on 2 territorial levels reflecting the administrative organisation of countries. The 433 OECD large (TL2) regions represent the first administrative tier of subnational government, for example, the Ontario Province in Canada. There are 2 414 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.[8] All the regions are defined within national borders.

This classification – which, for European countries, is largely consistent with the Eurostat NUTS 2021 classification – facilitates greater comparability of geographic units at the same territorial level.[9] 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.

For the non-OECD countries in this report, only TL2 regions have been identified for Brazil, the People's Republic of China, India, Peru, South Africa and Tunisia, whereas for Bulgaria and Romania, TL2 and TL3 are derived from the European 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:

- *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.

- *With access to a small/medium city*, if at least half of the regional population can reach an FUA of between 50 000 and 250 000 inhabitants within a 60-minute car ride.

- *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.[10]

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 resides. 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: predominantly urban regions (PU), intermediate regions (IN), predominantly rural regions close to a city (PRC) and predominantly rural remote regions (PRR). 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 yet been applied 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 the OECD-EU countries, this rural-urban typology is presented in the publication.

Sources of data for territorial statistics

OECD Regions and Cities at a Glance 2022 includes a selection of indicators from the OECD Regional Database, the OECD Metropolitan Areas Database and a number of indicators modelled by the OECD specifically for this publication. More specifically, some sections of the report provide, for the first time, comparable indicators on population, land use and quality of the Internet connection at both regional and metropolitan levels, among others.

The report also presents new, modelled indicators on the environmental transition, including on greenhouse gas (GHG) emission by sector, energy production and exposure to extreme climate events, for which various global geospatial data sources were used, as reported in the annexes of the publication.

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, geo-coded data, administrative records, big data and data produced by users. While countries are making use of 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 universally available information.

Most of the indicators for cities and FUAs are derived by integrating different sources of data, making use of geographic information system (GIS) techniques 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 estimate population projections in metropolitan areas.

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.

Further resources

The different topics are visualised through interactive graphs and maps in the *OECD Regions and Cities Data Visualisation* platform (*https://regions-cities-atlas.oecd.org/*). Users can select from among all the indicators included in the OECD Regional and Metropolitan Areas 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 United Nations 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 *www.oecdregionalwellbeing.org/* allows users to measure well-being in each region, compare it against over 400 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, environment, education, safety, civic engagement, housing, social support network and life satisfaction.

Acronyms and abbreviations

	Description
Australia (TL2)	TL2 regions of Australia
Australia (TL3)	TL3 regions of Australia
GIS	Geographic information system
GDP	Gross domestic product
FUA	Functional urban area
IN	Intermediate (region)
LFS	Labour force survey
MA	Metropolitan area (functional urban area with a population of more than 500 000 inhabitants)
NEET	Adults neither employed nor in education or in training
NOG	Non-official grid
OECD#	The sum of all of 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)
PCT	Patent Co-operation Treaty
PM$_{2.5}$	Particulate matter (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 codes

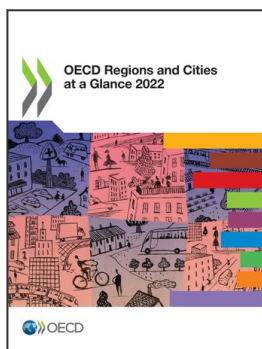| Code	Country	Code	Country
AUS	Australia	ISL	Iceland
AUT	Austria	ISR	Israel
BEL	Belgium	ITA	Italy
CAN	Canada	JPN	Japan
CHE	Switzerland	KOR	Korea
CHL	Chile	LUX	Luxembourg
COL	Colombia	LVA	Latvia
CRI	Costa Rica	LTU	Lithuania
CZE	Czech Republic	MEX	Mexico
DEU	Germany	NLD	Netherlands
DNK	Denmark	NOR	Norway
ESP	Spain	NZL	New Zealand
EST	Estonia	POL	Poland

Code	Country	Code	Country
FIN	Finland	PRT	Portugal
FRA	France	SVK	Slovak Republic
GBR	United Kingdom	SVN	Slovenia
GRC	Greece	SWE	Sweden
HUN	Hungary	TUR	Türkiye
IRL	Ireland	USA	United States

Note on Israel: The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

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. See Dijkstra, Poelman and Veneri (2019).

4. For more details on the degree of urbanisation, see *https://ec.europa.eu/eurostat/web/degree-of-urbanisation/background*.

5. Moreno-Monroy, A., M. Schiavina and P. Veneri (2020), "Metropolitan areas in the world. Delineation and population trends", *Journal of Urban Economics*, Vol. 125, *http://dx.doi.org/10.1016/j.jue.2020.103242*.

6. For a detailed explanation, see Dijkstra, Poelman and Veneri (2019).

7. Some OECD countries have adopted a definition for their own metropolitan areas or urban systems that looks beyond the administrative approach. For example, Australia (Australian Bureau of Statistics, 2012), Canada (Statistics Canada, 2002) and United States (U.S. Office of Management and Budget, 2000) 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, Spain, Mexico and United Kingdom based on the functional approach.

8. The US TL3 regions are based on the Bureau of Economic Analysis' Economic Areas. For the latest information on the methodology, please refer to: *http://beagov.prod.acquia-sites.com/sites/default/files/newsreleases/general/2004/pdf/rea1104.pdf*.

9. 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.

10. 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*.