

An aerial photograph of a city, likely Gothenburg, Sweden, taken at sunset. The city is built on a peninsula with a river winding through it. The sky is a mix of orange, yellow, and blue. In the foreground, there are several large buildings, including a prominent one with a solar panel array on its roof. A large ship is docked at a pier in the water. The overall scene is a mix of urban architecture and natural elements like the water and sky.

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economic intelligence

 **VÄSTRA
GÖTALANDSREGIONEN**

West Sweden and STRING Regional Economic Benchmark 2023

Commissioned by Region Västra Götaland www.vgregion.se

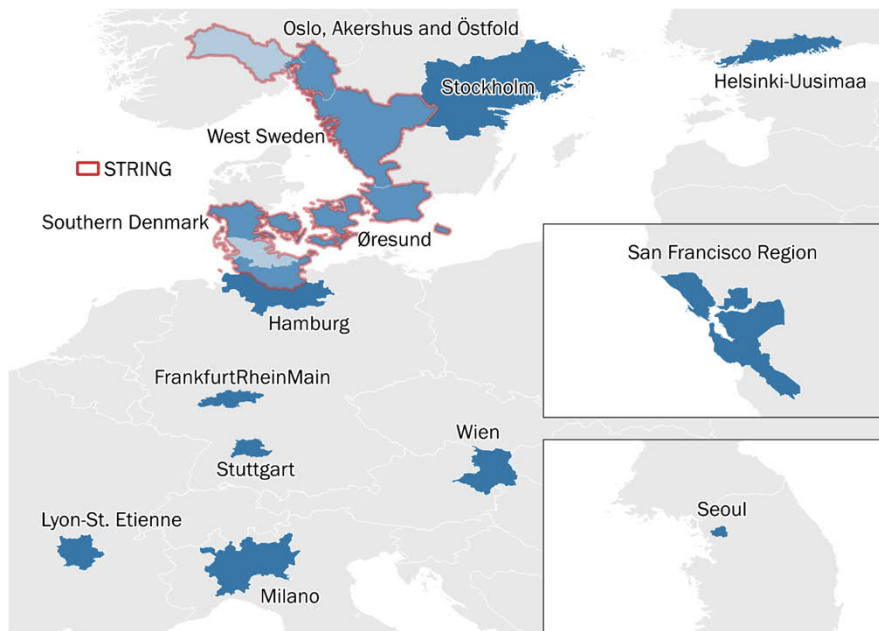
6 December 2023

VGR Analys 2023:69

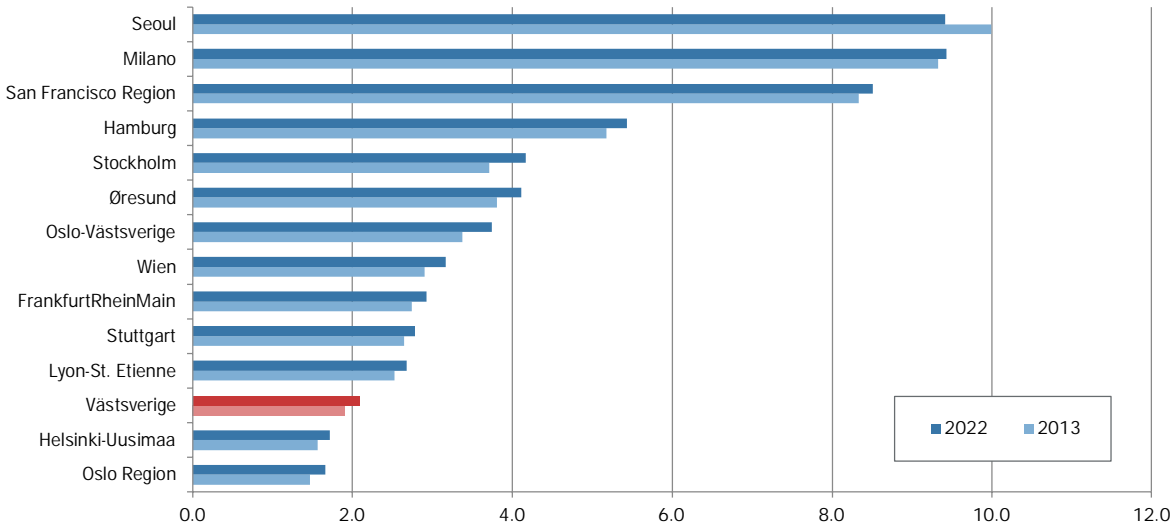
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General Information
Definition of Benchmarking Regions



General Information Population



Note In Million persons, 2022/2013, Western Europe and STRING is not depicted in the graph due to large size

Source BAK Economics

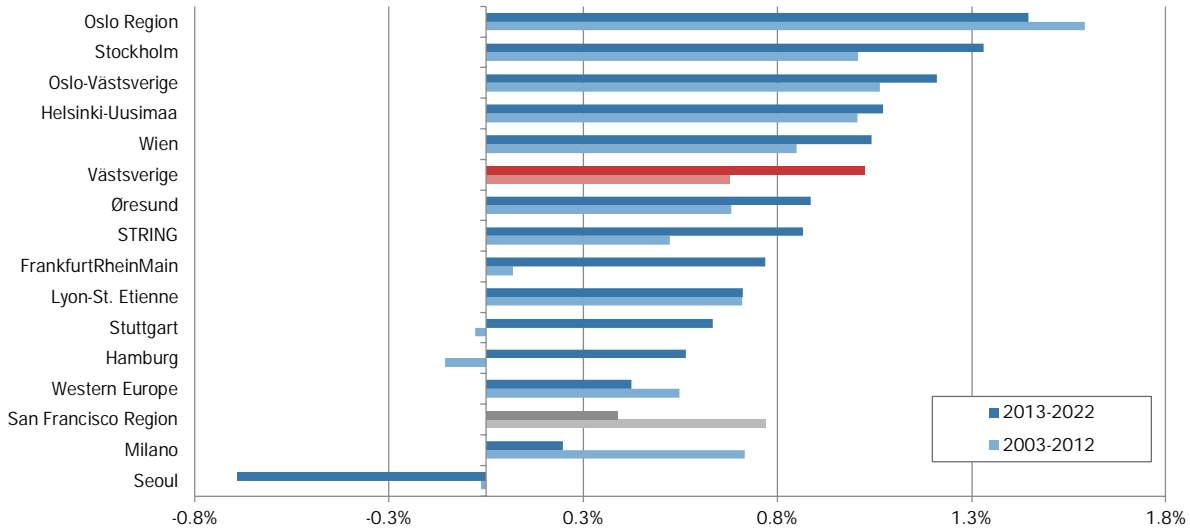
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Methodological Notes Population

Population by region is defined by the number of inhabitants (citizens or foreigners) living in the defined regions. Data refer to the beginning of the year, except for Korea (year average) and the United States (from the 1st of July).

General Information Population Growth



Note In % p.a.
Source BAK Economics

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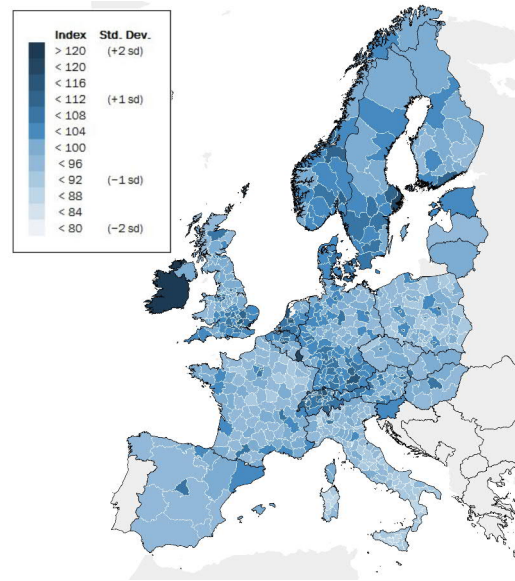
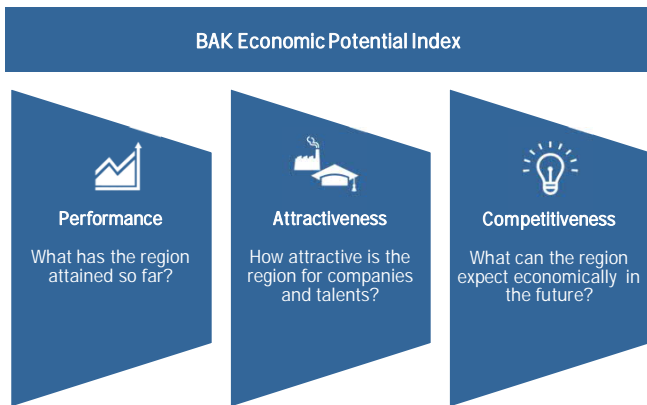
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BAK Economic Potential Index 2022

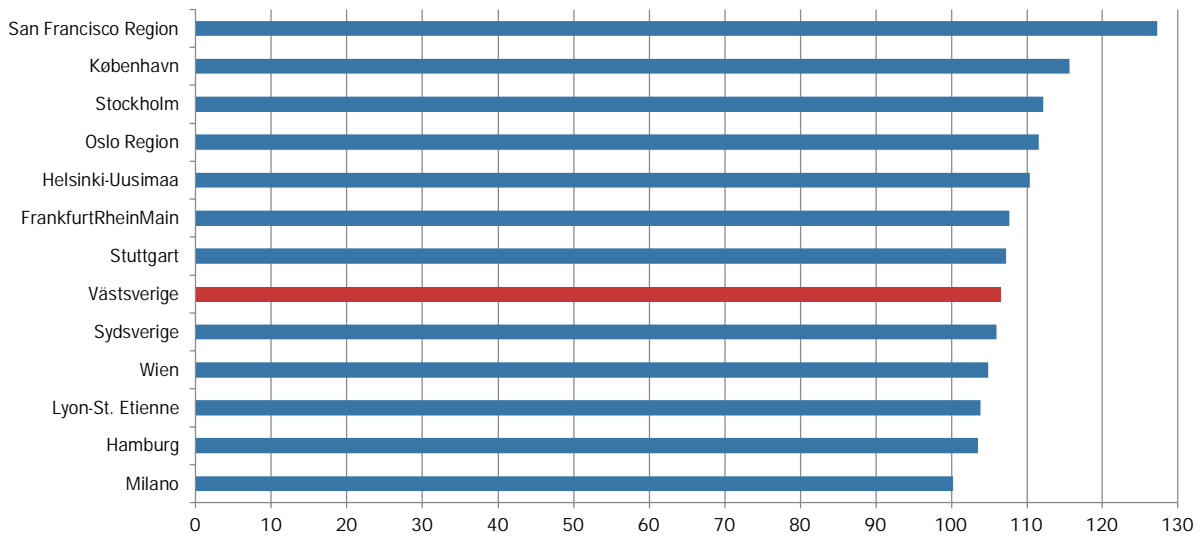
Monitoring regional economic analysis:
A comparison of European regions

Assessing the economic potential



Average of TL 2 Regions in Western Europe and US = 100

Economic Potential BAK Economic Potential Index



Note Index, WE15 & US = 100, RED 2023

Source BAK Economics

bak-economics.com

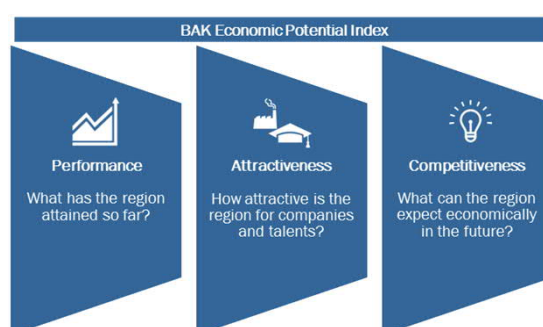
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Methodological Notes BAK Economic Potential Index

The BAK Economic Potential Index – comprising Performance, Attractiveness and Competitiveness – offers a balanced and consistent set of indices for these three dimensions. It comprises economic performance indicators such as real GDP per capita or job growth, location factors such as the tax burden on companies and employees or accessibility, as well as productivity and industry data to measure the competitiveness of the regions' economic structures.

The Performance Index measures a region's past economic growth and current wealth. It combines an assessment of the level of economic activity as well as of the dynamics of the economy. The Attractiveness Index assesses the future potential of a region by looking at the attractiveness of the location for companies as well as for highly qualified individuals. It reflects the ability of a region to attract and retain companies as well as human capital. The Competitiveness Index also addresses future prospects by estimating the competitiveness of a region's export sectors as well as its economic growth of tomorrow, given the economic structure visible today.

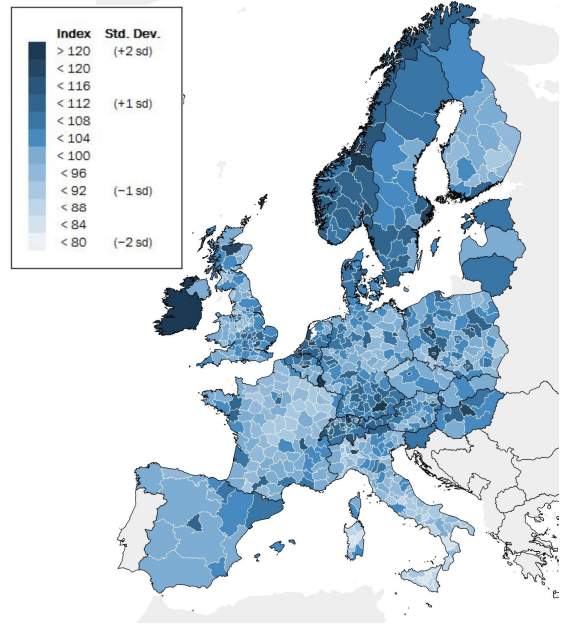
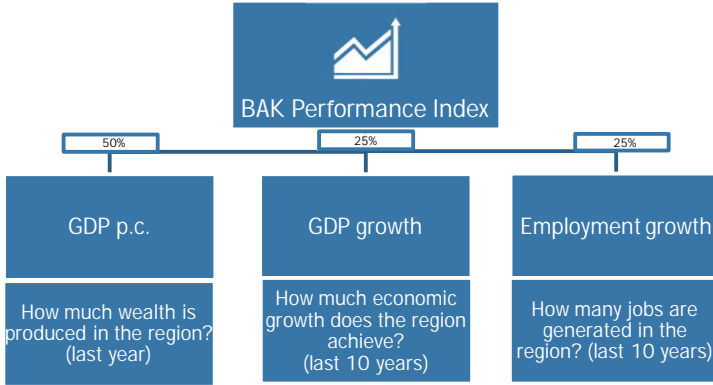
The average of all Territorial Level 2 (TL2) regions in Western Europe and the US is set to 100 and the standard deviation of the variable of the same set is set to 10. Therefore, an index value of 110 means a region's economic potential is one standard deviation better than the average of all Western European and US TL2 regions. An index of 80 means it is two standard deviations below the average.



BAK Performance Index 2022

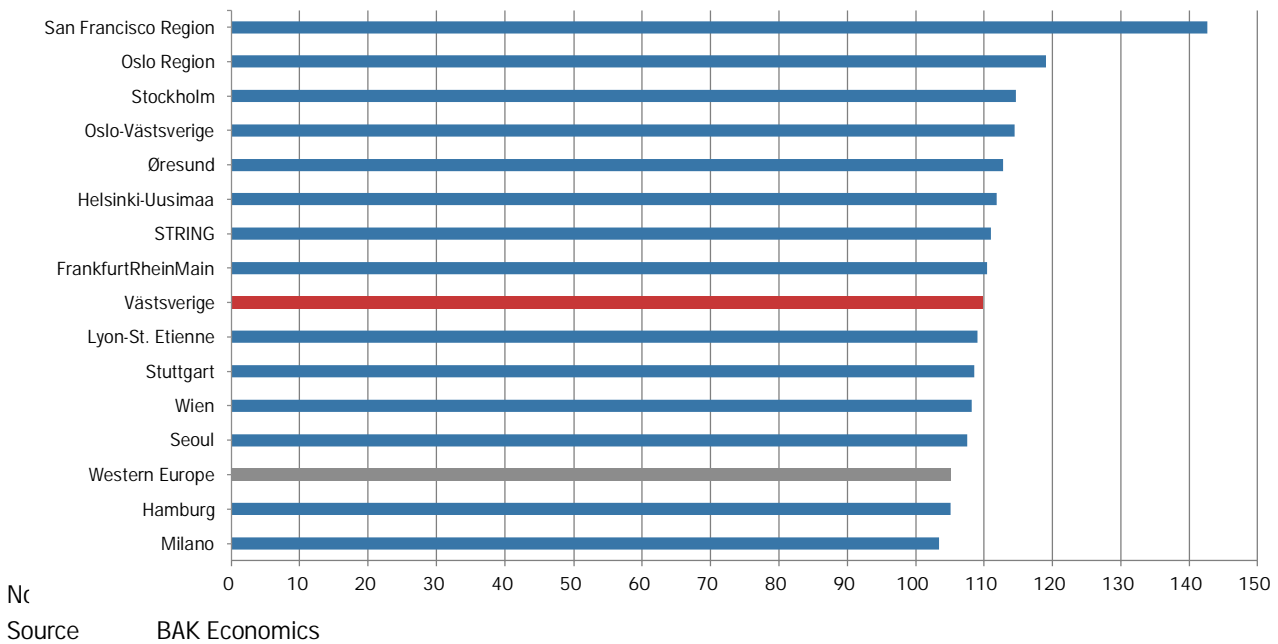
Monitoring regional economic analysis:
A comparison of European regions

Assessing the economic performance



Average of TL 2 Regions in Western Europe and US = 100

Economic Performance BAK Performance Index



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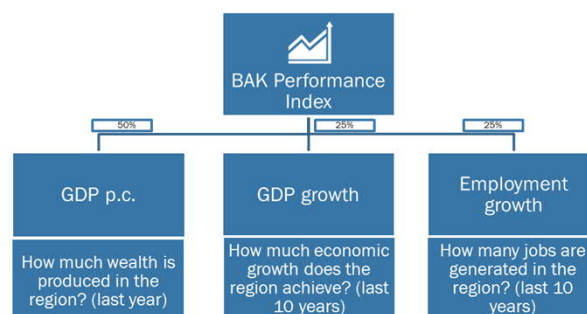
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Methodological Notes BAK Performance Index

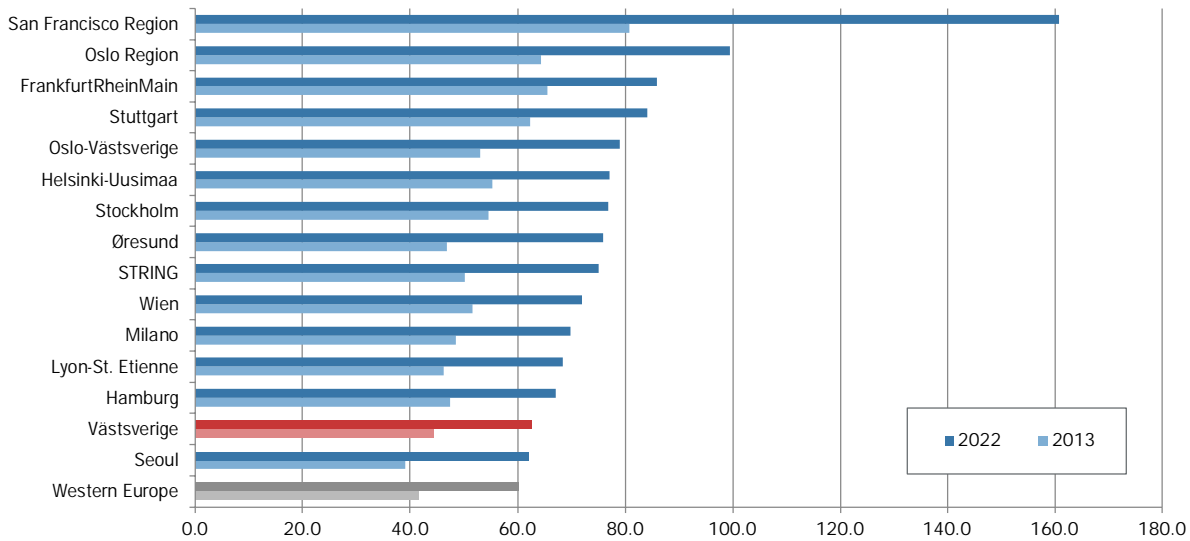
The Performance Index covers one aspect of the economic potential of a region by summarizing its economic performance in recent history. It combines measures of the level of its economic activity as well as the dynamics of its economy.

The indicator utilized to capture the level part of the index is straight forward: real GDP per capita (in US PPP). For the growth part, a 10 years' average growth is used which reflects structural developments rather than reflecting effects of the economic cycle. Yet it still puts enough focus on recent developments. Two indicators are used: GDP (the most common indicator for economic growth) as well as employment (creating jobs is probably the most important task of a regional economic policy).

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Economic Performance GDP per Capita



Note In 1'000 USD (at current prices and exchange rates, PPP corrected)

Source BAK Economics, OECD, National Statistical Offices, OEF

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Methodological Notes GDP per Capita

Gross Domestic Product (GDP) per capita is a core indicator of economic performance and measures a region's level of prosperity. A region's GDP related to its population size allows comparisons between regions of different sizes.

Nominal Gross Domestic Product is the monetary value of all the finished goods and services produced at market prices within a region's borders in a year. It is calculated as the difference between the monetary values of production and intermediate inputs. Then, the GDP is divided by the total population for the same year.

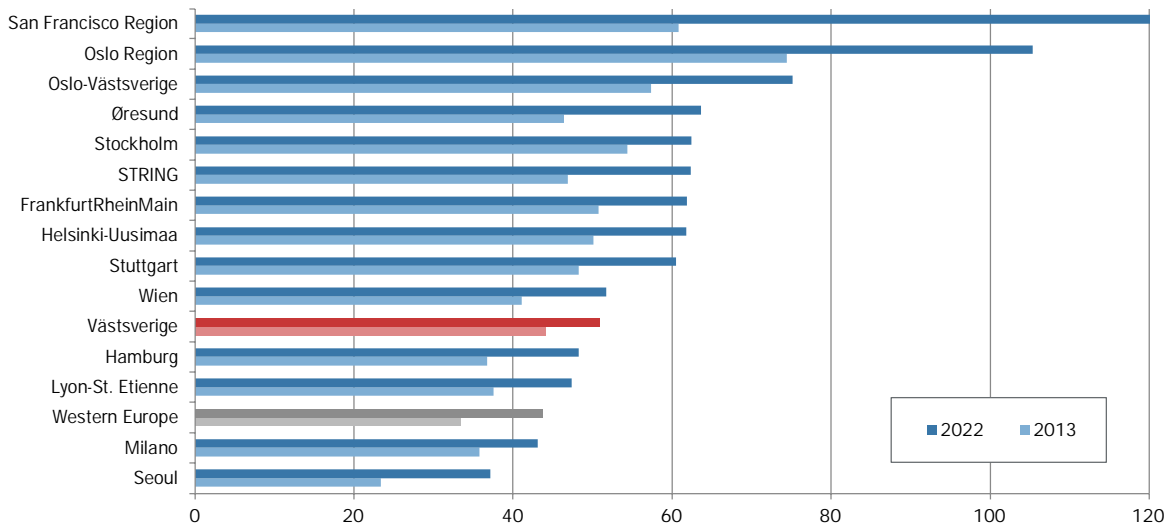
Current prices and exchange rates

In order to compare data from different currency regions for individual years, GDP is measured in current prices (nominal) and exchange rates (annual average exchange rates).

PPP (Purchasing Power Parity)

PPP correction is used to equal the exchange rates between two countries to the ratio of the currencies' respective purchasing power. PPP is an exchange rate valuing the different purchasing power of the currencies instead of financial market exchange rates, which fluctuate massively and are vulnerable to speculation.

Economic Performance GDP per Capita



Note In 1'000 EUR (at current prices and exchange rates)

Source BAK Economics, OECD, National Statistical Offices, OEF

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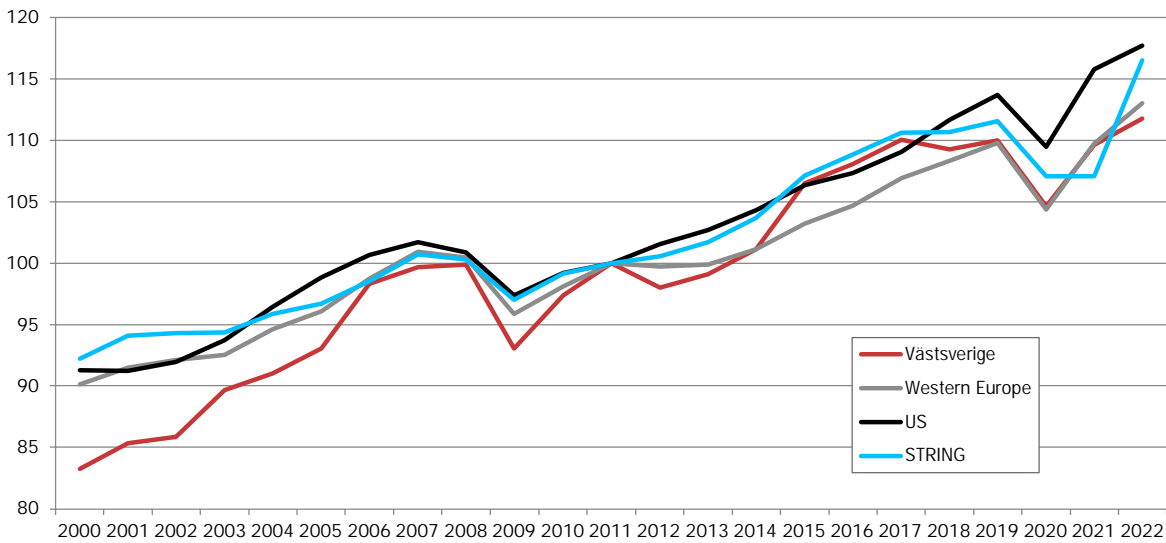
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Economic Performance Growth of real GDP per Capita



Note Index, 2011 = 100 (at prices of preceding year)

Source BAK Economics, OECD, National Statistical Offices, OEF

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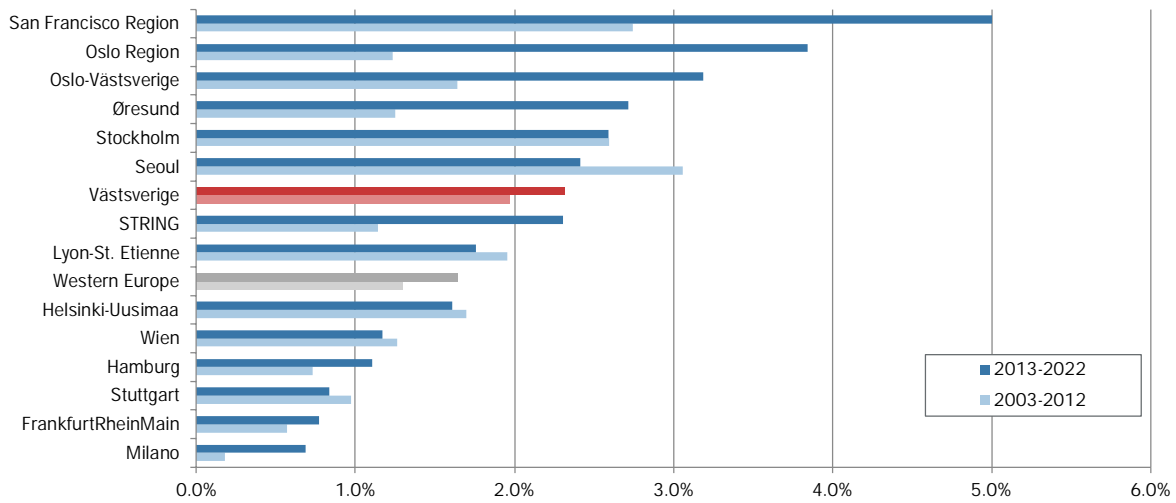
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Methodological Notes Real GDP Growth

Economic growth expressed in real terms measures the economic dynamics of a region and indicates how the region's prosperity evolves over time. The graph displays average annual growth rates.

Real GDP equals the deflated nominal GDP. It is calculated using chained volumes, i.e. the GDP level of year t is measured at prices of the previous year ($t-1$).

Economic Performance Real GDP Growth



Note In % p.a. (at prices of preceding year)

Source BAK Economics, OECD, National Statistical Offices, OEF

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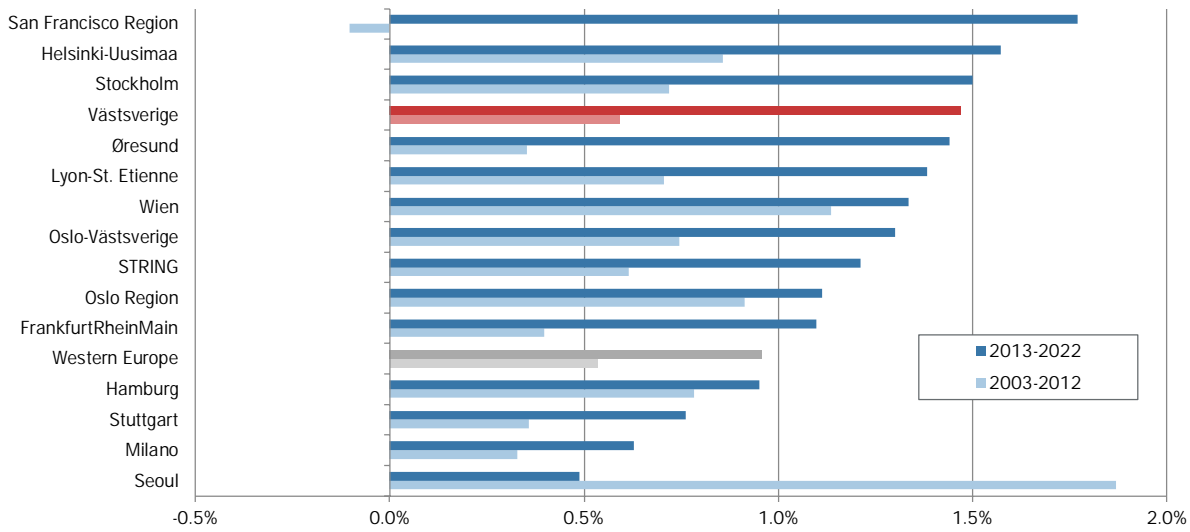
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Methodological Notes Real GDP Growth

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Real GDP equals the deflated nominal GDP. It is calculated using chained volumes, i.e. the GDP level of year t is measured at prices of the previous year ($t-1$).

Economic Performance Employment Growth



Note In % p.a.

Source BAK Economics, OECD, National Statistical Offices, OEF

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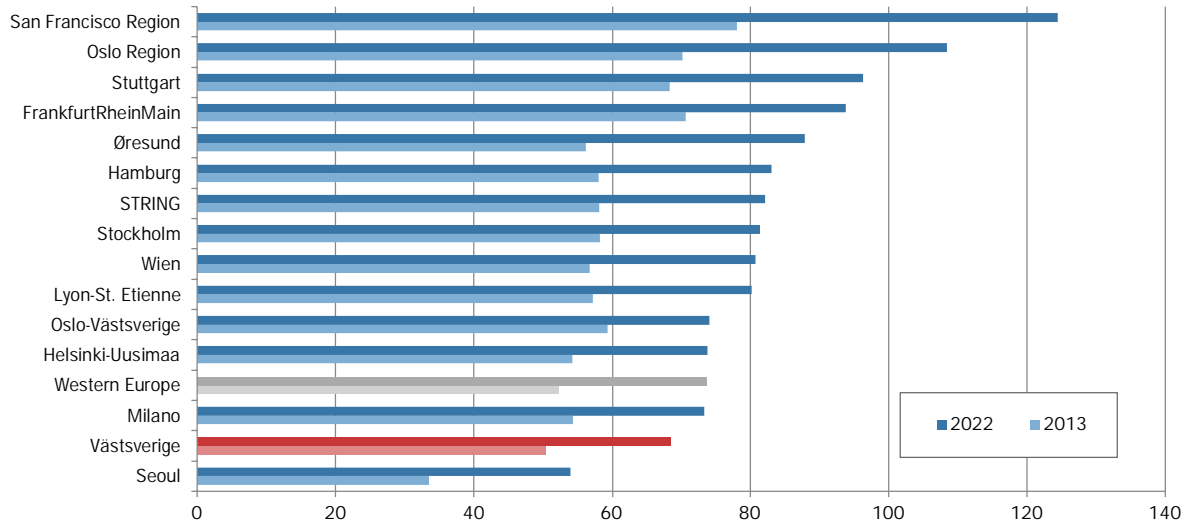
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Methodological Notes Employment Growth

Economic performance of a region can be measured by either GDP growth or employment growth. A region is successful whenever an increase in production creates new jobs.

Total employment includes all people engaged in domestic production (employees and self-employed) in the region, regardless of whether they are residents of the region or not.

Economic Performance Hourly Productivity



Note In USD per hour worked (at current prices and exchange rates, PPP corrected)

Source BAK Economics, OECD, National Statistical Offices, OEF

bak-economics.com

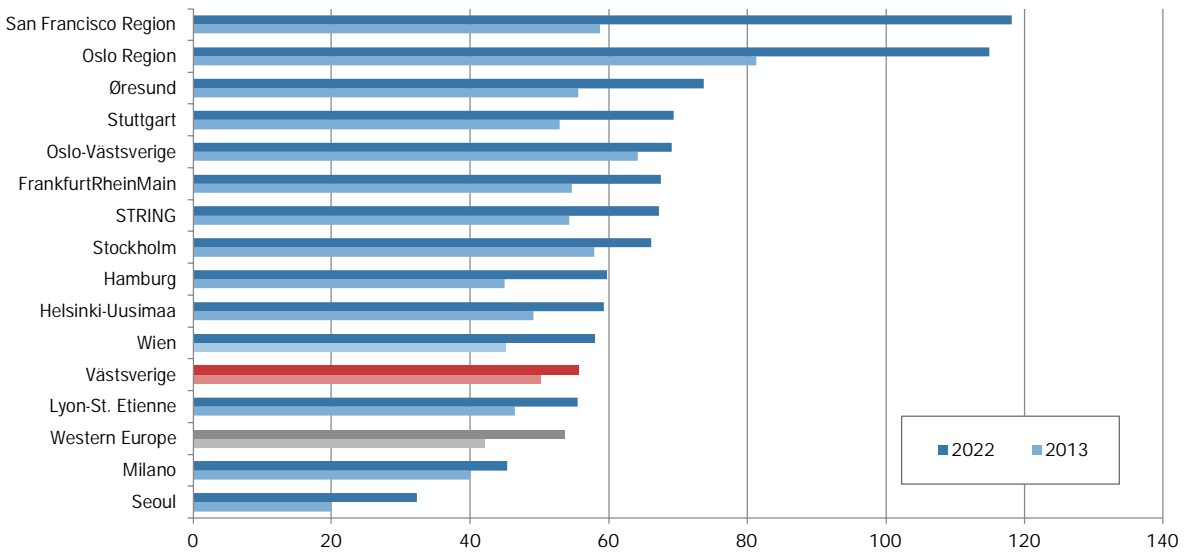
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Methodological Notes Hourly Productivity

Productivity is a key figure for a region since it captures the international competitiveness of the region. Productivity is the ratio between input (production factors) and output (goods and services produced). The key indicator is the hourly productivity, which measures how much Gross Value Added (GVA) is produced per hour worked.

Hourly productivity is defined by the nominal gross value added, divided by the effective total number of hours worked.

Economic Performance Hourly Productivity



Note In EUR per hour worked (at current prices and exchange rates)

Source BAK Economics, OECD, National Statistical Offices, OEF

bak-economics.com

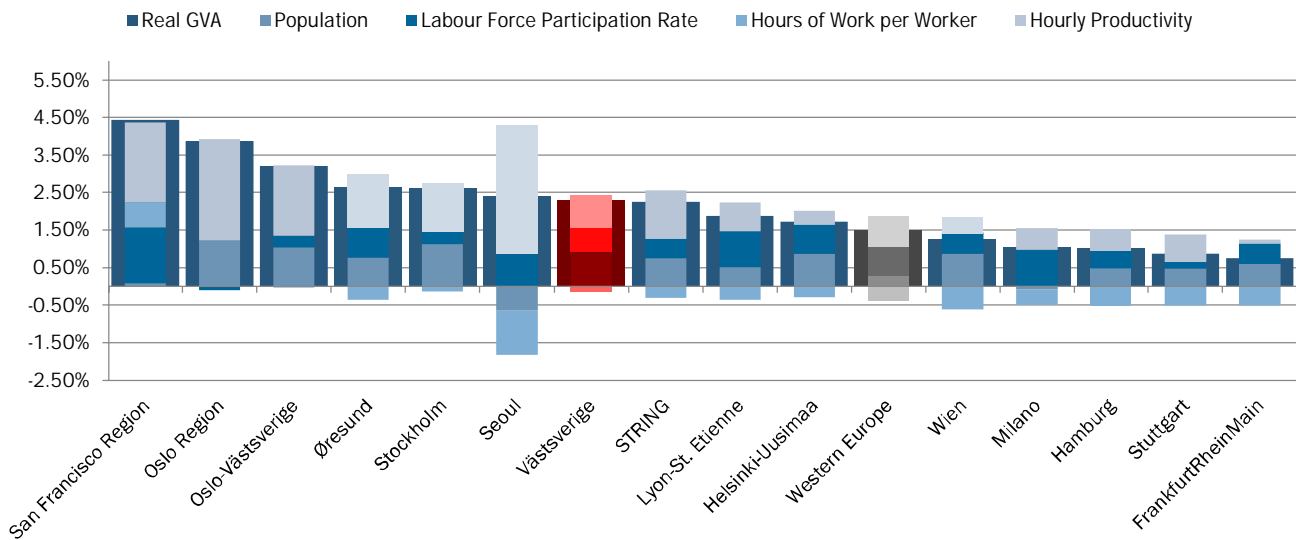
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Hourly productivity is defined by the nominal gross value added, divided by the effective total number of hours worked.

Economic Performance Decomposition of real Gross Value Added growth



Note In % p.a., 2013-2022

Source BAK Economics, OECD, National Statistical Offices, OEF

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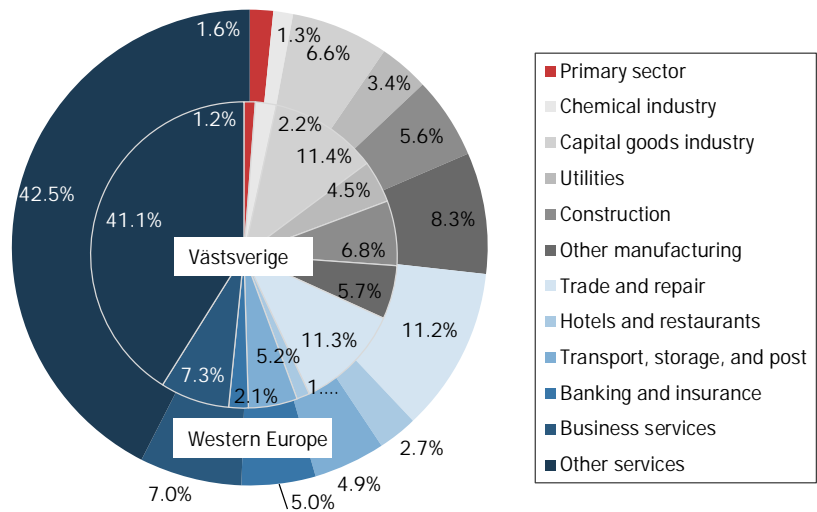
Methodological Notes

Decomposition of real Gross Value Added growth

From a macro-economic perspective, the growth of GVA can be decomposed into various socio-economic factors: contribution of the productivity per hour, hours worked per employee and labour market participation and population. This analysis shows the importance of labour productivity to economic growth in Västsvrige in comparison with the benchmarking sample.

The graph shows the annual average real GVA growth for the period 2013-2022 decomposed into its components. The broad bars represent the total GVA growth rates whereas the narrow bars in the foreground show the decomposition into the different sources of the GVA growth: Population (shift in the population size), labour force participation rate (shift in the size of the workforce relative to the size of the population), hours of work per worker (shift in the average working hours per worker) and hourly productivity (shift in the value added per worked hour).

Economic Structure



Note Total share of nominal gross value added in USD, 2022

Source BAK Economics, OECD, National Statistical Offices, OEF

bak-economics.com

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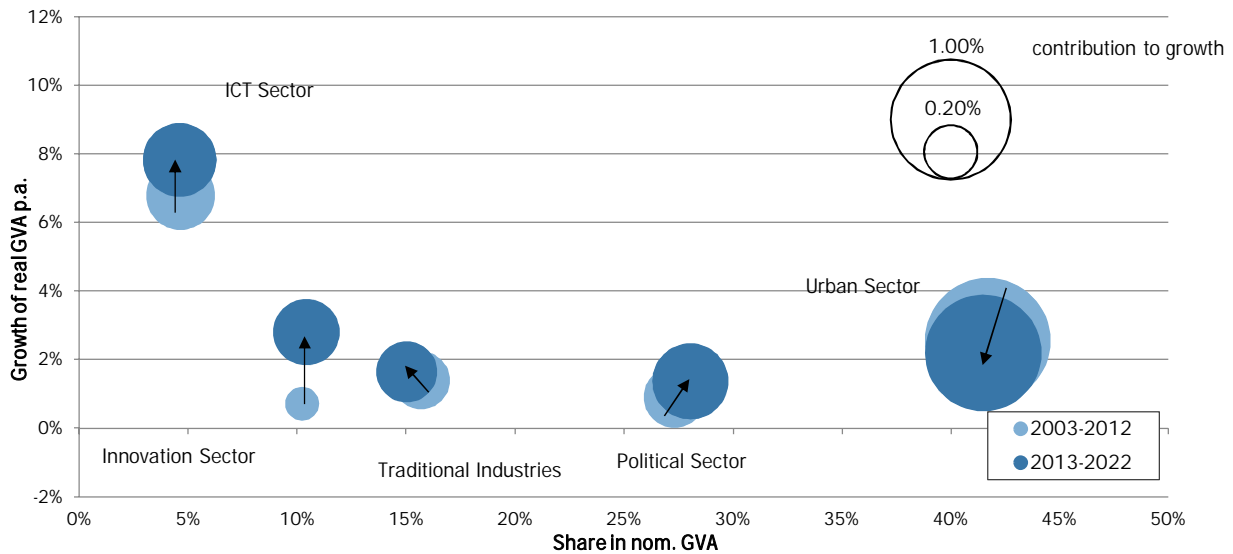
Methodological Notes

Economic Structure

The economic structure of an economy identifies the key regional sectors by showing the share of selected industries (or aggregates of industries) of the total nominal gross value added of the economy.

Nominal Gross Value Added (GVA) differs from GDP in the sense that it is not adjusted for any kind of subsidies or taxes. Also, it is reported at the industry level. Nominal GVA is calculated at current prices and exchange rates in USD.

Industries Driver Sectors Västsverige



Note Total share of nominal gross value added and real gross value added growth, 2013-2022

Source BAK Economics, OECD, National Statistical Offices, OEF

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Methodological Notes Driver Sectors

In analysing an economy, helpful insights can be found by analysing specific industries or sectors separately. One common property of the industries in a sector is productivity (level and growth). The following five aggregates are known as the five "driver sectors".

ICT Sector

- Manufacture of computer, electronic and optical products
- Telecommunications
- IT and other information services

Innovation Sector

- Manufacture of pharmaceuticals, medicinal chemical and botanical products
- Manufacture of irradiation, electromedical and electrotherapeutic equipment
- Manufacture of optical instruments and photographic equipment
- Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus
- Manufacture of batteries and accumulators
- Manufacture of machinery and equipment n.e.c.
- Manufacture of motor vehicles, railway locomotives, ships and boats, air and spacecraft
- Manufacture of military fighting vehicles
- Manufacture of medical and dental instruments and supplies

Urban Sector

- Trade and repair of automobiles and consumer durables
- Financial and business services
- Transport
- Hotels and restaurants
- Entertainment, culture and sport
- Personal services
- Private Households
- Architectural and engineering activities

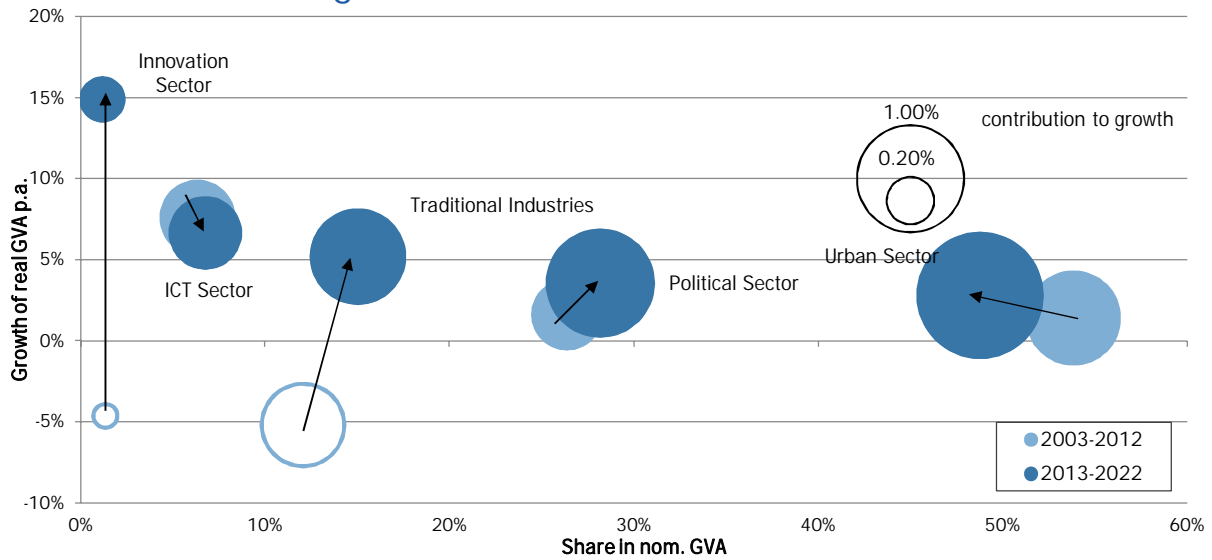
Political Sector

- Agriculture, forestry and fishing
- Manufacture of weapons and ammunition
- Manufacture of transport equipment n.e.c.
- Energy and water supply
- Scientific research and development
- Public administration and defence; compulsory social security
- Education
- Health and Social services
- Creative, arts and entertainment activities; libraries, archives, museums and other cultural activities; gambling and betting activities
- Activities of membership organizations
- Sewage treatment, refuse disposal

Traditional Sector

- Food, beverage, tobacco products
- Textiles, garment, furs, leather products and shoes
- Processing of wood
- Paper- and boardmaking / Printing and publishing
- Coke, refined petroleum products
- Rubber and plastic products
- Other products from nonmetallic minerals
- Metals and metal products / Mechanical engineering
- Mining and quarrying
- Manufacture of chemicals and chemical products
- Construction
- Manufacture of wiring, wiring devices, electric lighting equipment and other electrical equipment
- Manufacturing not elsewhere classified

Industries Driver Sectors Oslo Region



Note Total share of nominal gross value added and real gross value added growth 2013-2022

Source BAK Economics, OECD, National Statistical Offices, OEF

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Methodological Notes Driver Sectors

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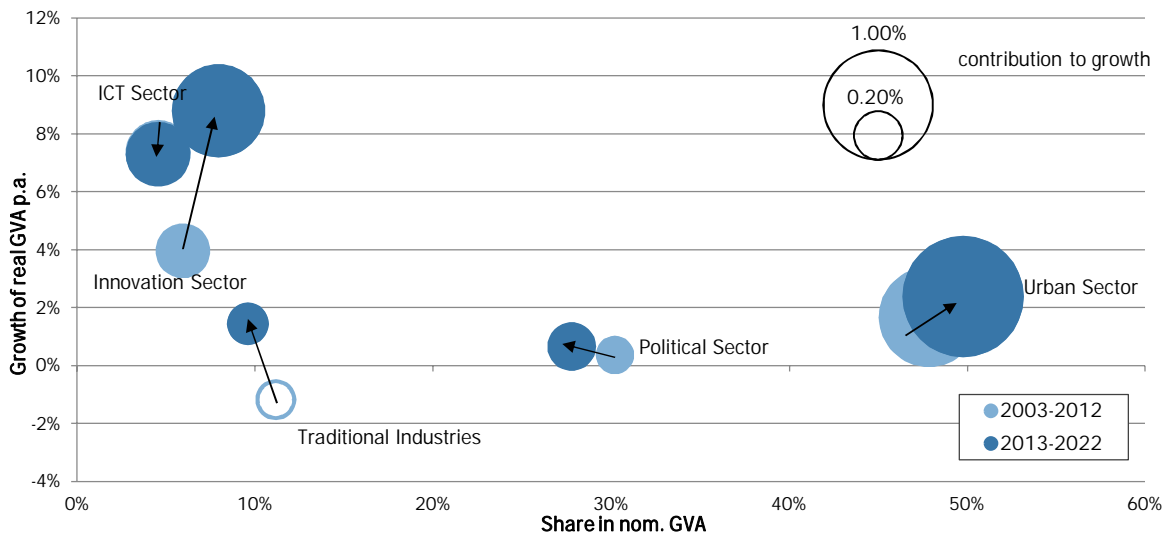
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- Mining and quarrying
- Manufacture of chemicals and chemical products
- Construction
- Manufacture of wiring, wiring devices, electric lighting equipment and other electrical equipment
- Manufacturing not elsewhere classified

Industries Driver Sectors Øresund



Note Total share of nominal gross value added and real gross value added growth 2013-2022

Source BAK Economics, OECD, National Statistical Offices, OEF

bak-economics.com

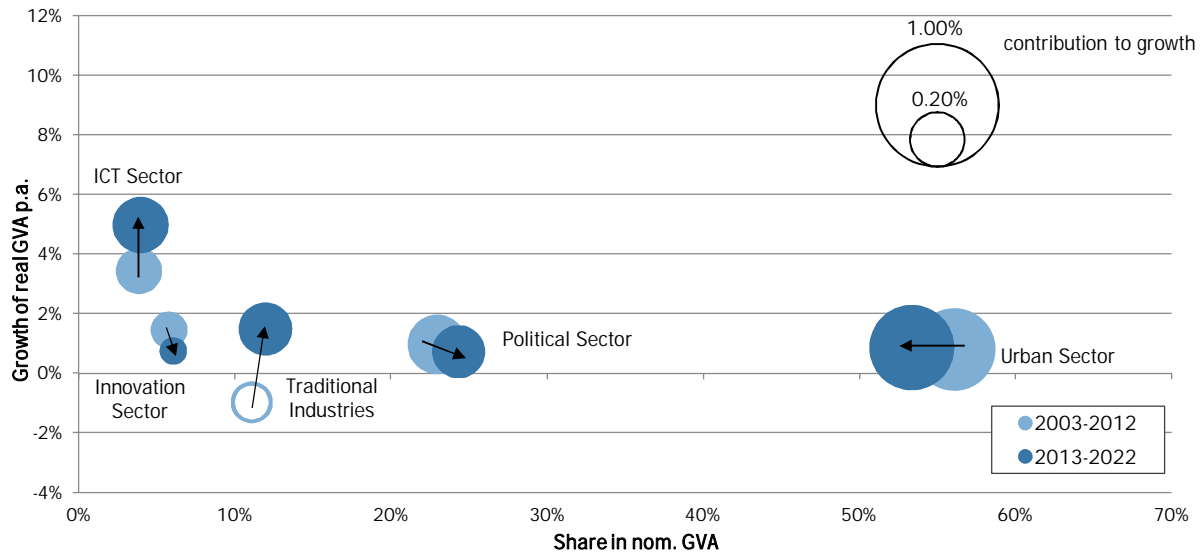
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Methodological Notes Driver Sectors

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<p>ICT Sector</p> <ul style="list-style-type: none"> - Manufacture of computer, electronic and optical products - Telecommunications - IT and other information services 	<p>Political Sector</p> <ul style="list-style-type: none"> - Agriculture, forestry and fishing - Manufacture of weapons and ammunition - Manufacture of transport equipment n.e.c. - Energy and water supply - Scientific research and development - Public administration and defence; compulsory social security - Education - Health and Social services - Creative, arts and entertainment activities; libraries, archives, museums and other cultural activities; gambling and betting activities - Activities of membership organizations - Sewage treatment, refuse disposal
<p>Innovation Sector</p> <ul style="list-style-type: none"> - Manufacture of pharmaceuticals, medicinal chemical and botanical products - Manufacture of irradiation, electromedical and electrotherapeutic equipment - Manufacture of optical instruments and photographic equipment - Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus - Manufacture of batteries and accumulators - Manufacture of machinery and equipment n.e.c. - Manufacture of motor vehicles, railway locomotives, ships and boats, air and spacecraft - Manufacture of military fighting vehicles - Manufacture of medical and dental instruments and supplies 	<p>Traditional Sector</p> <ul style="list-style-type: none"> - Food, beverage, tobacco products - Textiles, garment, furs, leather products and shoes - Processing of wood - Paper- and boardmaking / Printing and publishing - Coke, refined petroleum products - Rubber and plastic products - Other products from nonmetallic minerals - Metals and metal products / Mechanical engineering - Mining and quarrying - Manufacture of chemicals and chemical products - Construction - Manufacture of wiring, wiring devices, electric lighting equipment and other electrical equipment - Manufacturing not elsewhere classified
<p>Urban Sector</p> <ul style="list-style-type: none"> - Trade and repair of automobiles and consumer durables - Financial and business services - Transport - Hotels and restaurants - Entertainment, culture and sport - Personal services - Private Households - Architectural and engineering activities 	

Industries Driver Sectors Hamburg



Note Total share of nominal gross value added and real gross value added growth, 2013-2022

Source BAK Economics, OECD, National Statistical Offices, OEF

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Methodological Notes

Driver Sectors

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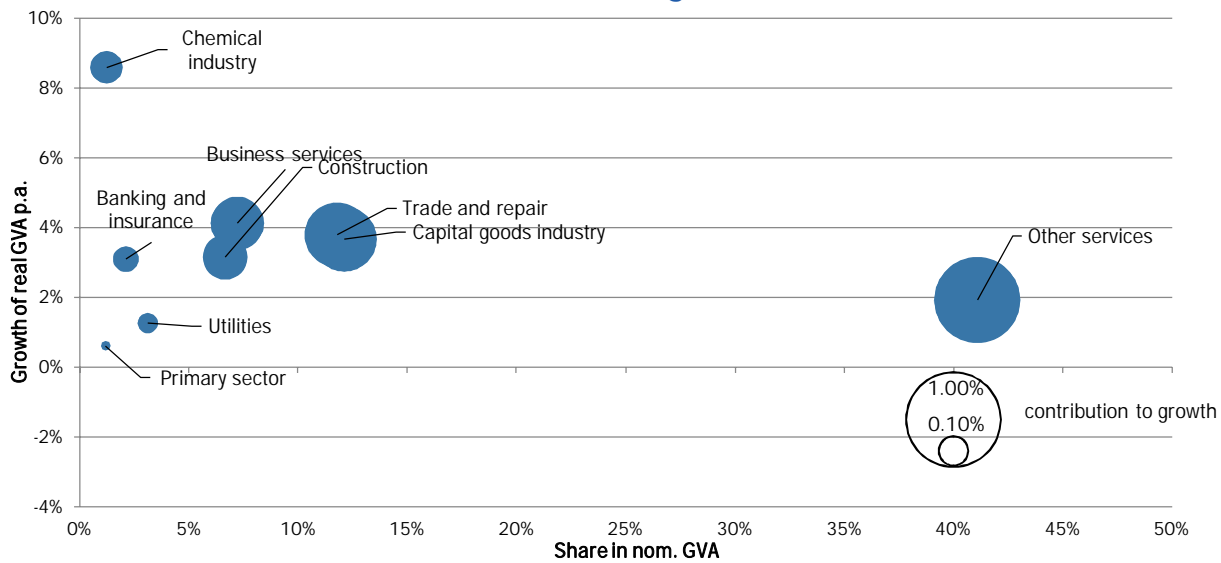
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Industries Contribution of Industries: Västsverige



Note Total share of nominal gross value added and real gross value added growth, 2013-2022

Source BAK Economics, OECD, National Statistical Offices, OEF

bak-economics.com

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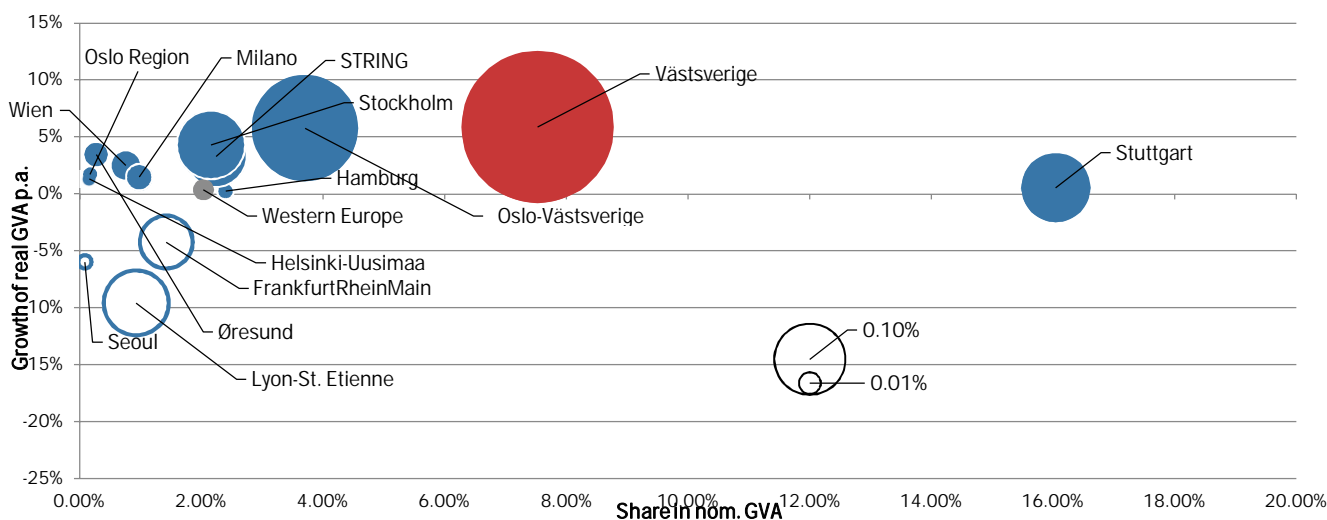
Methodological Notes Contribution of Industries

This graph analyses the growth contribution of industries (or aggregates of industries) in the region. The graph is based on gross value added.

The contribution of a sector (industry, firm, region, etc.) to the growth of an economy (sector, region, country, etc.) is measured by its weight in the total economy as well as its respective growth rate. Therefore, a large contribution to growth will be the result of a relatively high share undergoing moderate growth, or alternatively, a relatively small share with a more dynamic development.

For example, consider a sector with a 20% share of the regional economy and a 2% average annual growth rate between 2013 and 2022. This would mean that, on an annual basis, this sector contributed on average 0.4 percentage points to the growth rate of the region's economy between 2013 and 2022. Or, in other words, if this particular sector did not exist, the annual economic growth rate would have been 0.4 percentage points lower.

Growth contribution: Motorvehicles and Parts, other Means of Transport



Notes Real gross value added growth rate in % (at constant prices and exchange rates); Nominal gross value added in % (in USD; at current prices and exchange rates, PPP corrected) 2013-2022

Source BAK Economics, OECD, national statistical offices, OEF

Methodological Notes

Contributions of Motorvehicles and parts, other means of transport

This chart presents the growth contribution of a particular industry (or a particular aggregate of industries) for the benchmarking regions. The graph is based on gross value added. The evaluation of relevant region-specific industries is based on data as well as on expert knowledge.

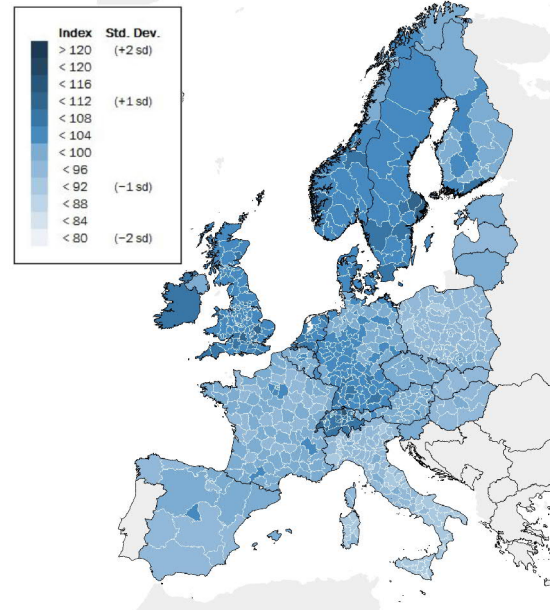
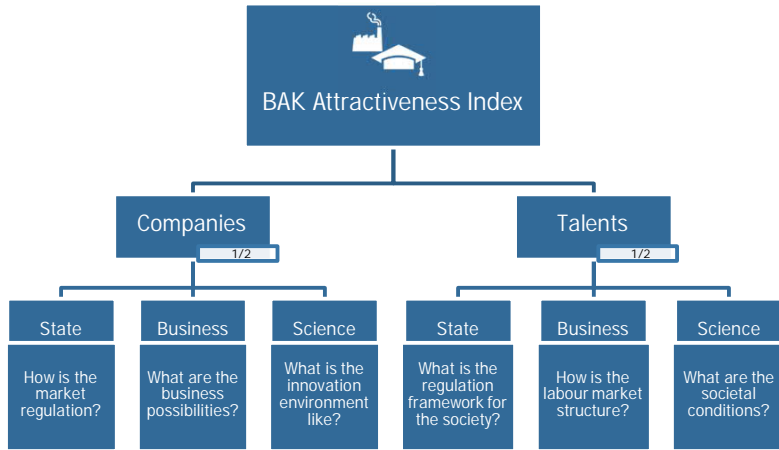
The x-axis conveys information on the share (in percent) and y-axis reflects the average annual growth (in percentage points) of the specific industry. Therefore, the growth contribution of a sector increases when moving from the lower left corner towards the right and/or upwards. As the relationship is non-linear, the growth contribution is also given in the graph: the size of the bubbles reflects the growth contribution.

The contribution of the industry to the growth of a region is measured by its weight in the total economy as well as its respective growth rate. Therefore, a large contribution to growth will be the result of a relatively high share undergoing moderate growth, or alternatively, a relatively small share with a more dynamic development.

For example, consider a sector with a 20% share of the regional economy and a 2% average annual growth rate between 2013 and 2022. This would mean that, on an annual basis, this sector contributed on average 0.4 percentage points to the growth rate of the region's economy between 2013 and 2022. Or, in other words, if this particular sector did not exist, the annual economic growth rate would have been 0.4 percentage points lower.

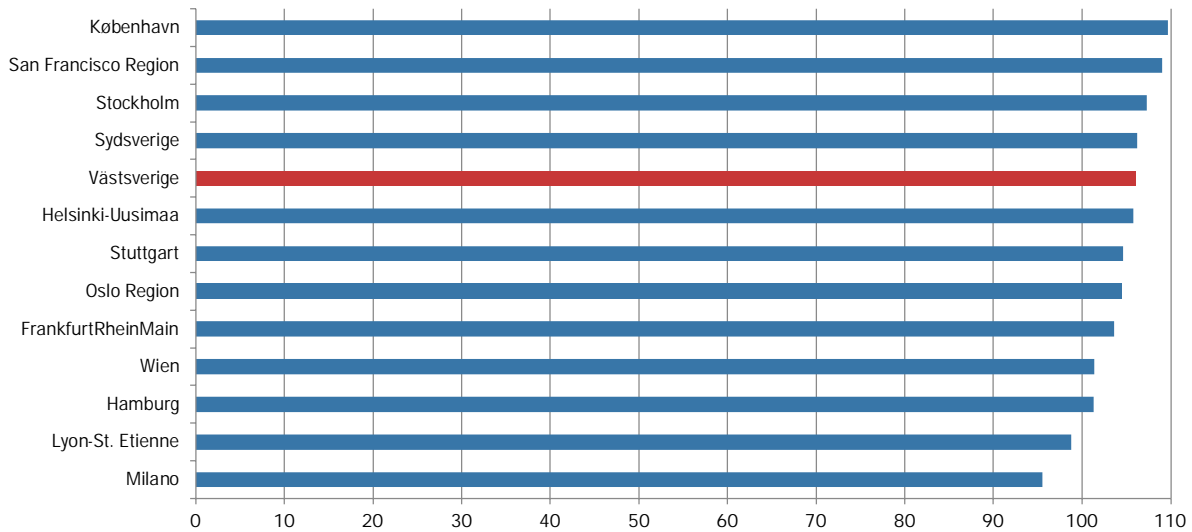
BAK Attractiveness Index 2022

Monitoring regional economic potential:
A comparison of European regions



Average of TL 2 Regions in Western Europe and US = 100

Regional Attractiveness BAK Attractiveness Index

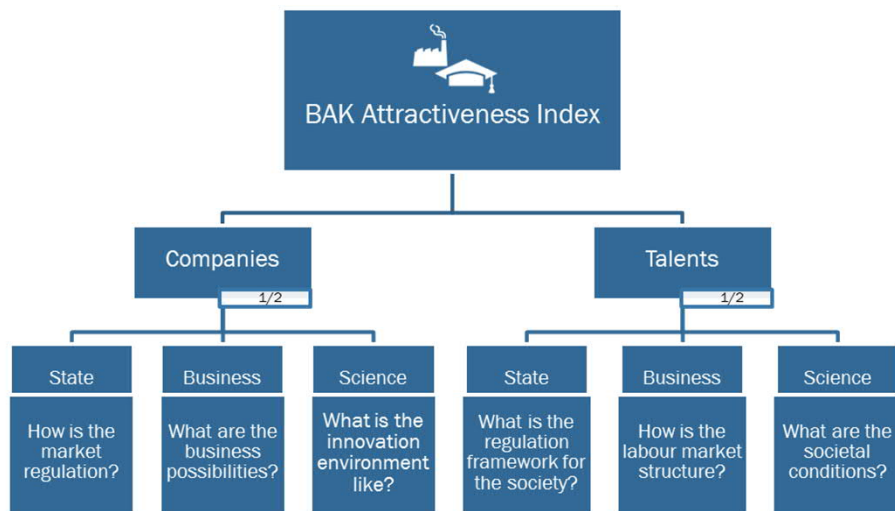


Note Index, WE15 & US = 100, RED 2023
 Source BAK Economics

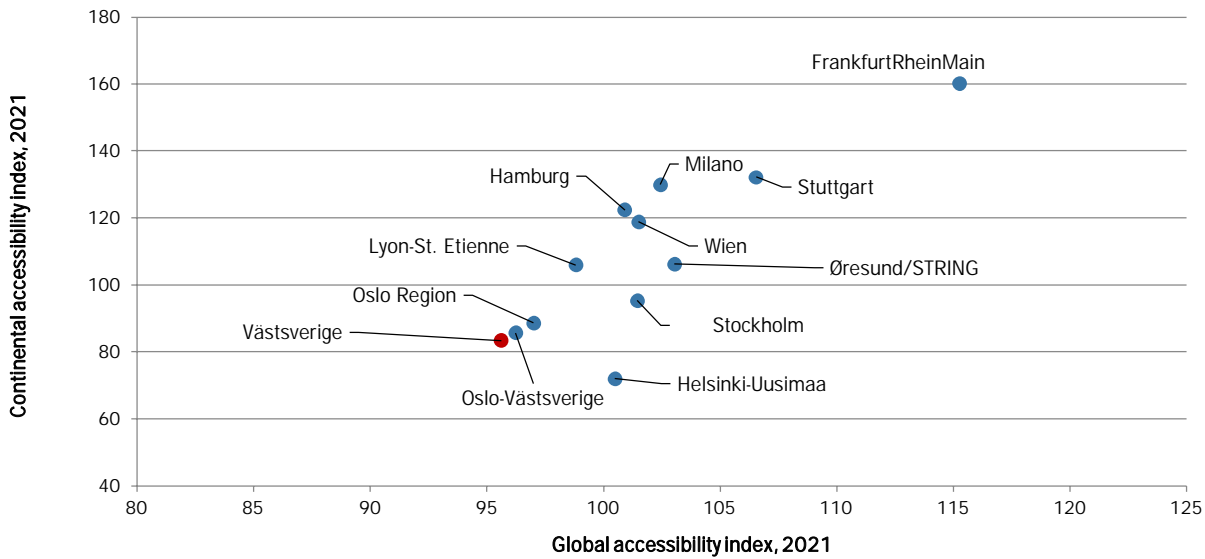
Methodological Notes BAK Attractiveness Index

The Attractiveness Index reflects the ability of a region to attract and retain companies as well as human capital. In a globalized economy, it is crucial for a region's competitiveness to attract these resources. However, attractiveness cannot be measured directly. Instead, the BAK Regional Economic Database (RED) provides various indicators of different topics which, together, illustrate the attractiveness of a region.

The average of all Territorial Level 2 (TL2) regions in Western Europe and the US is set to 100. The standard deviation of the variable of the same set is set to 10. Therefore, an index value of 110 means a region's economic potential is one standard deviation better than the average of all Western European and US TL2 regions. An index of 80 means it is two standard deviations below the average.



Regional Attractiveness Global and Continental Accessibility, 2021



Note Index (average accessibility of regions 2002 = 100)

Source BAK Economics, IVT

bak-economics.com

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Methodological Notes Accessibility

The accessibility of a region is determined by two factors: geographical location and infrastructure. While the geographical location cannot be changed, improving connectivity should be a key policy aim. A region's accessibility is a key factor in a globalised economy.

The concept of accessibility used here focuses on travel times and frequency for interregional or international business travels. The indicator reflects a region's complete potential. This implies that all other regions are included without any time limitations. Nevertheless, it weights the different destinations regarding the travel time (with a non-linear function) and the GDP of the destination.

Global accessibility (index, sample average 2002=100)

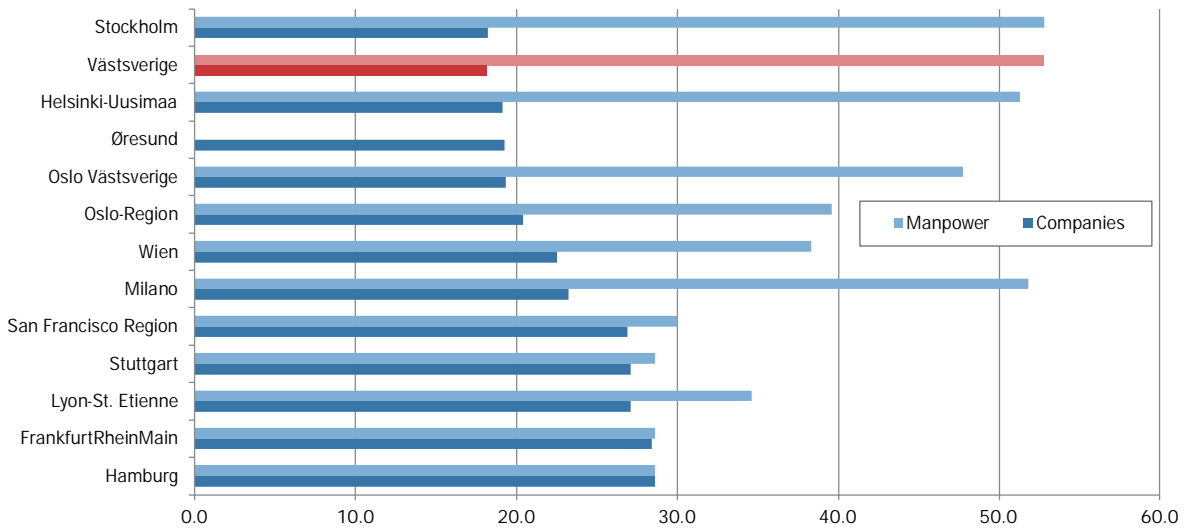
Global accessibility reflects the outbound accessibility from a region to locations in the rest of the world outside of Europe respectively from US regions to locations outside of the US.

Continental accessibility (index, sample average 2002=100)

Continental accessibility is measured by calculating travel times from and to almost all big European cities by train, by car and by inter-European flights. The fastest modus or the fastest combination of modes is used for each individual connection.

The regions accessibility reflect the accessibility of the center/most populous city of the region.

Regional Attractiveness Taxation of Companies and Highly Qualified Manpower, 2021



Note Taxation of companies and highly qualified manpower, 2021 (sorted by Companies; lowest = best)

Source BAK Economics, ZEW

bak-economics.com

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Methodological Notes

Taxation

Taxation is an issue defined, to a large extent, on the national level. Nonetheless, it is an important issue for regions which affects its attractiveness to companies and talents and, thus, for its prospects for growth.

Company tax burden (in percentage of profits)

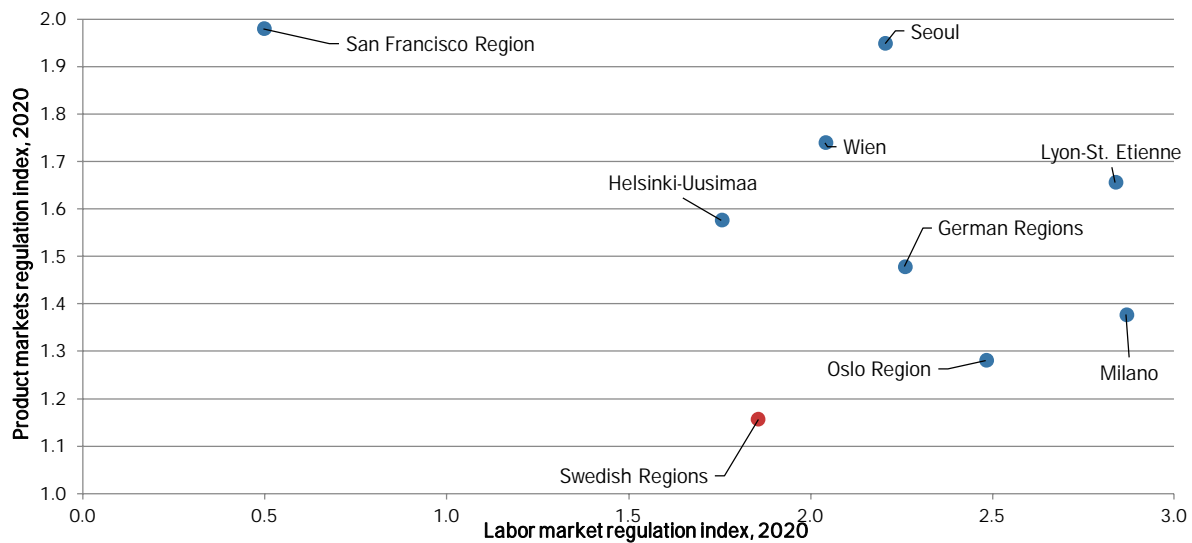
The average tax burden is the decisive criterion for corporations when selecting a location.

This indicator measures the Effective Average Tax Rate (EATR) (in %) of companies including all direct company taxes for a typical profitable investment. The calculation includes income and capital taxes (including real estate taxes) and the most important rules for regulating the tax measurement basis.

Tax burden on a highly qualified employee (in percentage of gross income)

It measures the average tax rate for a highly qualified employee (available income after taxes: 100,000 EURO; married employee with two children). Taxes include the expected tax burden on pensions and social security contributions if mandatory and appropriate (has a tax characteristic).

Regional Attractiveness Regulation of Product and Labor Markets, 2020



Note Index (0 = very liberal / 6 = very restrictive)

Source OECD, Cato Institute, BAK Economics

bak-economics.com

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Methodological Notes

Regulation of Product and Labour Markets

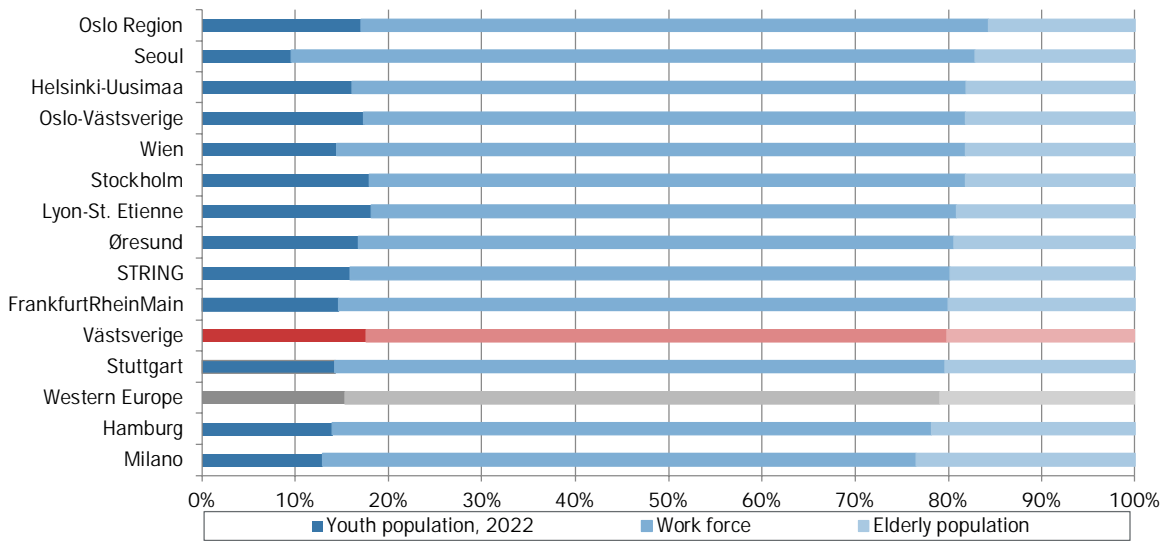
Regulation corrects market failures and compensates for externalities. But regulation is also costly. The optimal level of regulation can not be determined theoretically; empirical studies have to be used to answer this question at least partly. Regulations work through many channels of an economic system, and the relationship between regulation and growth is very complex.

The labour market regulation index refers to the strictness of employment protection of regular contracts as well as temporary employment. The indicator is based on legal information that is coded and transformed. The higher the value, the stronger the regulation.

The product market regulation index comprises three sub-indices which are state control over enterprises, barriers to entrepreneurship as well as barriers to trade and investment. The indicators are based on legal information that are coded and transformed. The higher the value, the stronger the regulation.

Both indices range from 0 (no regulation) to 6 (restrictive regulation).

Regional Attractiveness Population Composition, 2022



Note Percentage share of young population, working force, and elderly population (sorted by share of young population + work force)

Source BAK Economics, OECD

bak-economics.com

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Methodological Notes Population Composition

This graph describes the population with respect to different age groups and provides information about the work force and the dependency rates (youth and elderly population).

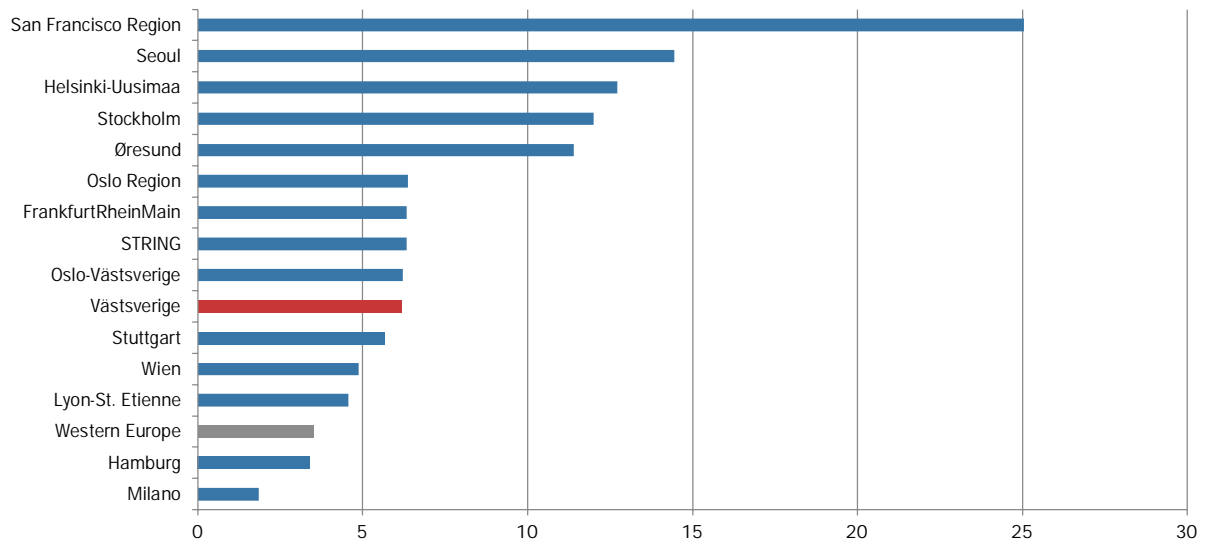
Youth population: Percentage of population under 15 years old relative to total population.

Work force: Percentage of working age population (15 to 64 years) relative to total population.

Elderly population: Percentage of population over 65 years old relative to total population.

Regional Attractiveness

Patent Intensity



Note Number of patent applications per 1'000 employees in secondary sector, 2017-2019

Source BAK Economics, OECD Regpat March 2022

bak-economics.com

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Methodological Notes

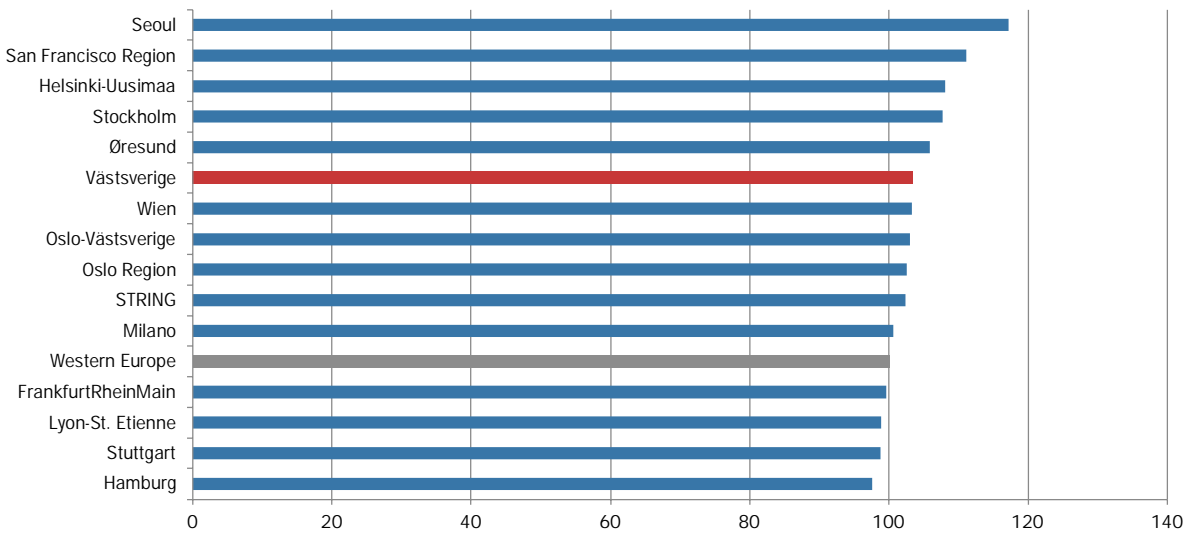
Patent Intensity

Patents are an indicator for the knowledge output of an economy. Patent intensity is representative of the technological and commercial utilization of research findings. Patents shed light on the phase before a product is introduced to the market.

Patents are counted partially according to the inventor's address. Only transnational patent applications were counted, that is, patents that had been applied in at least two countries (EPO and PCT-patents).

Patent intensity indicates the number of patent applications divided by the number of employees in manufacturing. The patent intensity measures the most recent patent activities, but it doesn't take into account the prior stock of patents in a region.

Regional Attractiveness Quality of Universities, 2022



Note Index quality of universities in all sciences, (100 = average of all TL2 in WE and US), 2022

Source BAK Economics, CTWS Leiden 2022

bak-economics.com

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Methodological Notes Quality of Universities

Besides patents, the number of publications is another valid indicator for measuring the innovative strength of a region. The world's leading universities foster high level scientific research and are essential for the development and dissemination of knowledge and skills.

This graph shows the quality of universities in all sciences.

The BAK Quality of Universities Index relies on the CWTS Ranking of Leiden and is a measure of the intensity of the universities' quality in any given region. This intensity is measured by the university's number of scientific publications which count among the top 10% of cited publications adjusted (with a non-linear function) for the size of the population of the region.

The region's overall score depends on both the intensity of the quality of the universities within the region (3/4 weight) and the intensity of the quality of the universities in the surrounding regions (1/4 weight). The index is normalized. The average of all TL2 regions in Western Europe and the US is set to 100 and the standard deviation of the variable across the same set is calculated. This is set to 10. Therefore, an index value of 110 means the region's intensity of the quality of its universities is one standard deviation better than the average of all Western European and US TL2 regions.

Regional Attractiveness

Quality of Universities – Methodological Notes

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Methodological Notes

Quality of Universities

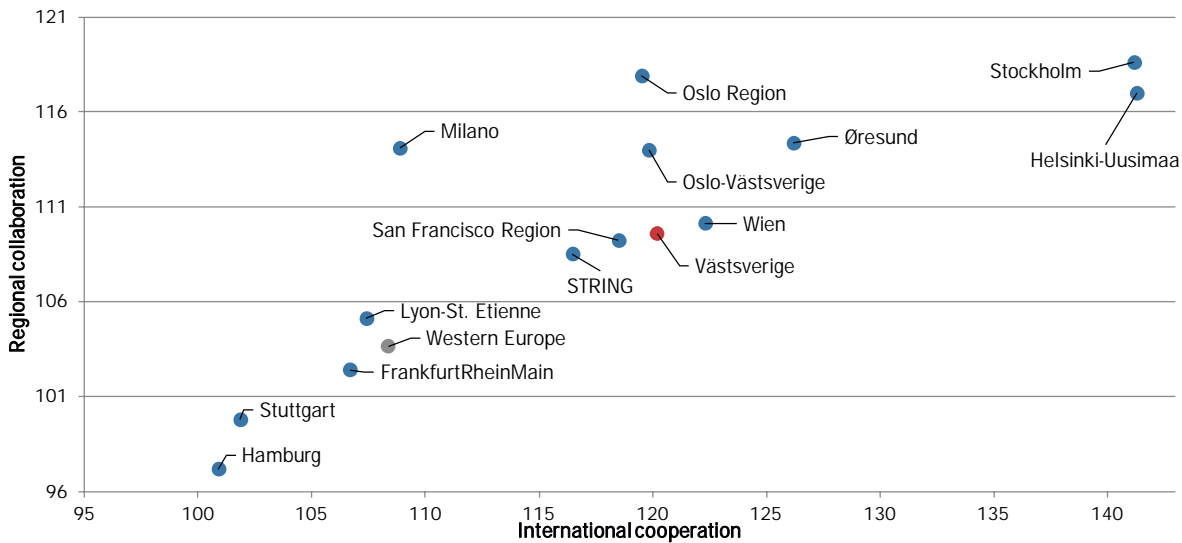
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Regional Attractiveness Regional and International Quality of Universities, 2022



Note Indices international and regional collaboration (100 = average of all TL2 in WE and US), 2022

Source BAK Economics, CTWS Leiden 2022

bak-economics.com

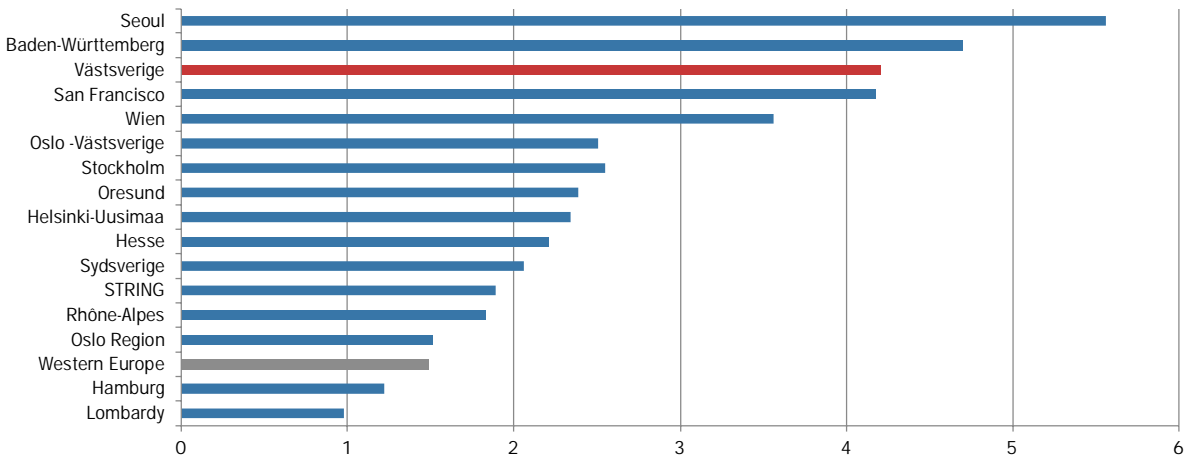
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Methodological Notes Quality of Universities

International research cooperation plays an important role for universities because it enhances the university's global reputation and, therefore, attracts even more researchers and international students to the region. In addition, international cooperation is very important for the domestic economy as it contributes to local technological and scientific development. The international collaboration on the x-axis is measured by the number of scientific publications co-authored by two or more countries which belong to the top 10% of all cited publications adjusted (with a non-linear function) for the size of the population of the region.

Regional collaboration matters because it shows the integration of the university into the regional economy. The regional collaboration on the y-axis is measured by the number of scientific publications with collaborators located within a 100 km radius which belong to the top 10% cited publications adjusted (with a non-linear function) for the size of the population of the region.

Regional Attractiveness Expenditures on Research and Development



Note Expenditures on research and development in business sector only exist on a higher level for the following regions: Frankfurt=Hesse, Milano=Lombardy, Stuttgart=Baden-Württemberg, San Francisco=California (2014), Seoul=Capital Region. Data refer to the latest available year between 2015-17, (Swedish regions 2019, Rhône-Alpes 2013).

Source OECD (September 2020), Statistik Austria, SCB

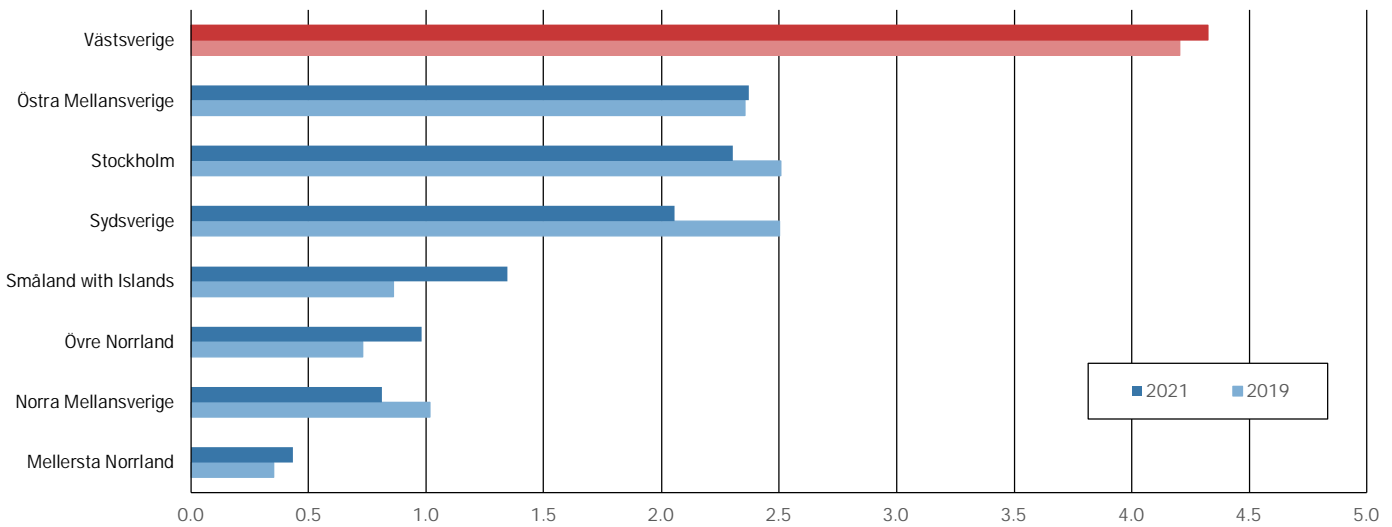
Methodological Notes Expenditures on Research and Development

Research and development intensity measures the relative importance a country accords to the knowledge creation.

This indicator measures the expenditures on research and development performed by the business sector in percentage of GDP. It refers to all monies expended on research and development. High expenditures by the business sector indicate a strong participation in the utilization of forms of knowledge.

Research and development expenditures are mostly only available for larger administrative regions (Territorial Level 2 or NUTS 2).

Regional Attractiveness Expenditures on Research and Development in Sweden



Note Expenditures on research and development in business sector in % of GDP for Swedish Regions, 2019, 2021
Source SCB, BAK Economics

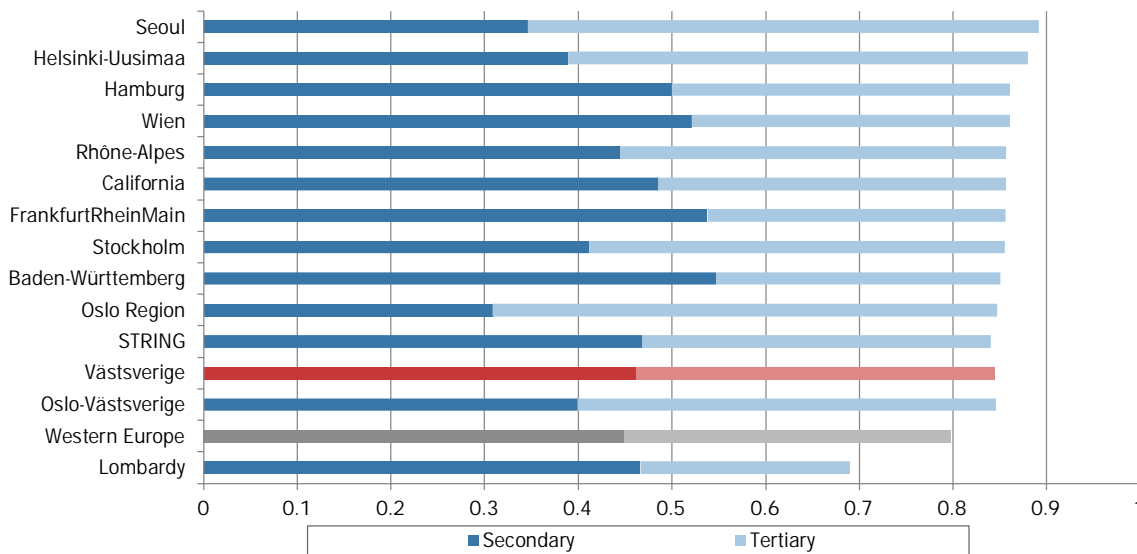
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Regional Attractiveness Labour Force with Secondary and Tertiary Education



Note Share of labour force (in %) with attained secondary and tertiary education, 2017. Seoul 2016, California 2016
Source BAK Economics, OECD

bak-economics.com

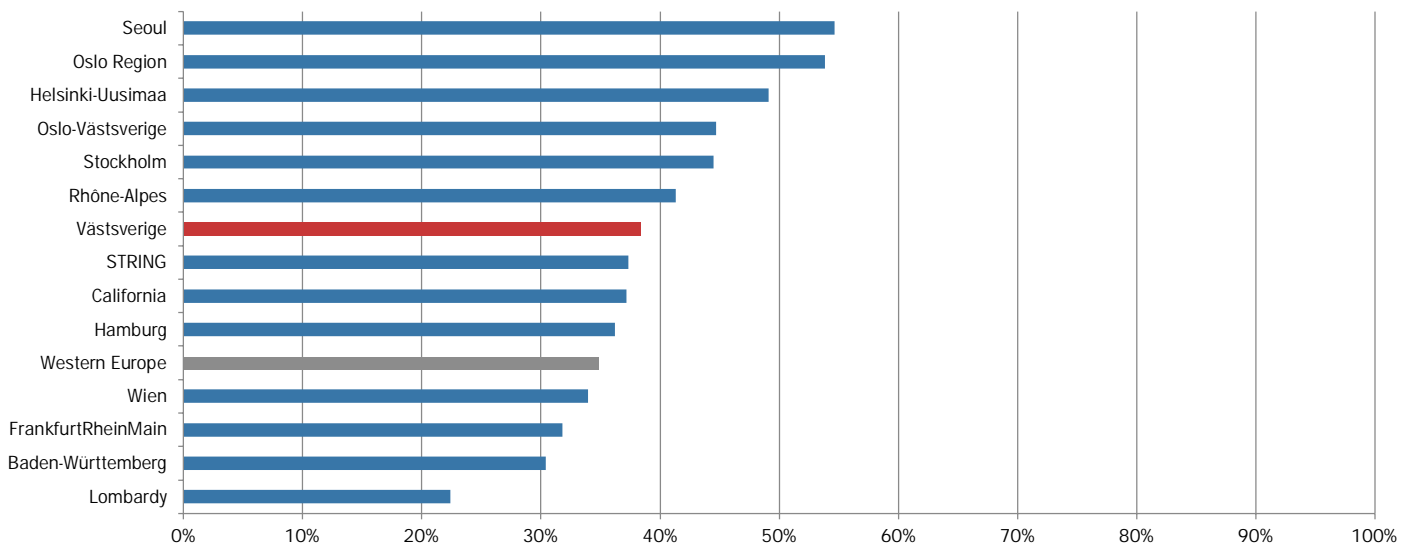
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Methodological Notes Labour Force with secondary and tertiary education

While the industries of highly developed countries are becoming more and more knowledge intensive, the production factor of human capital is becoming increasingly crucial. Human capital is understood as the sum of skills, creativity and knowledge of all people living or working in a region and contributing to the economic success of firms and the economy in general.

A good way to assess the human capital of a person is to look at his highest level of formal education achieved. The indicators used are the share of total labour force with a tertiary degree and the share of total labour force with a secondary degree (but not a tertiary). The educational attainment of the labour force is only available for larger administrative regions (Territorial Level 2 or NUTS 2).

Regional Attractiveness Labour Force with Tertiary Education



Note Share of labour force (in %) with attained tertiary education, 2017. Seoul 2016, California 2016.

Source BAK Economics, OECD

bak-economics.com

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Methodological Notes

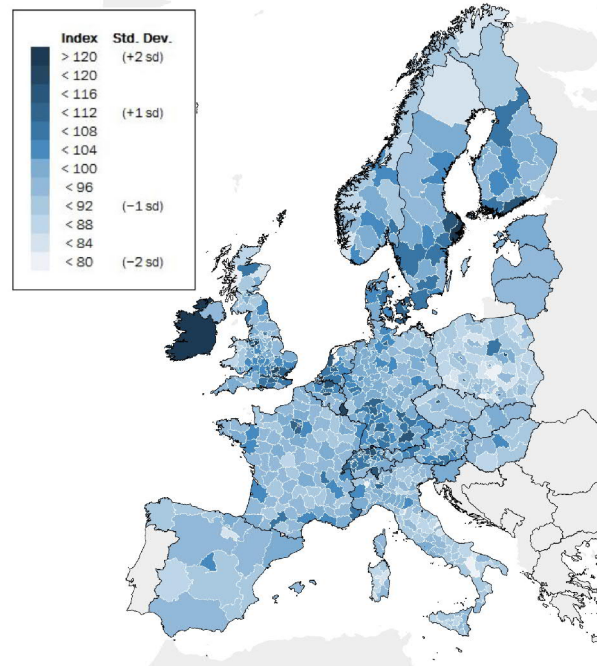
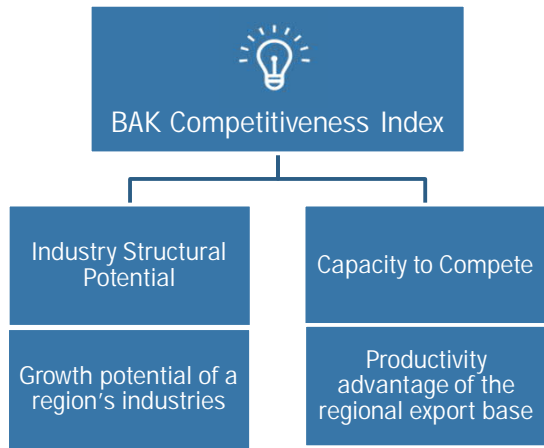
Labour Force with tertiary education

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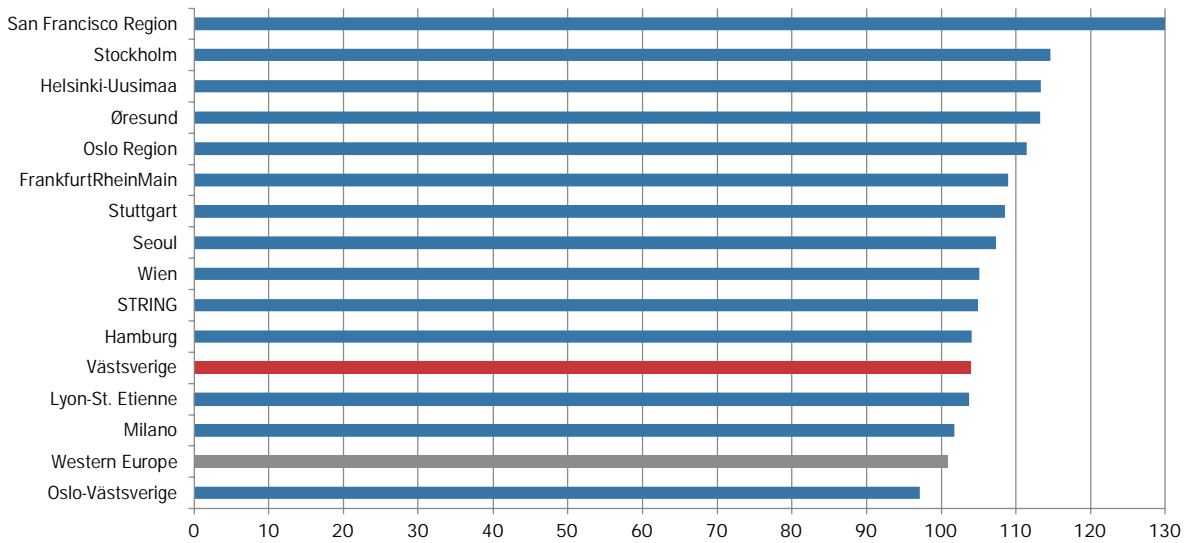
BAK Competitiveness Index 2021

Monitoring regional economic potential:
A comparison of European regions



Average of TL 2 Regions in Western Europe and US = 100

Competitiveness BAK Competitiveness Index



Note Index, WE15 & US = 100, RED 2023

Source BAK Economics

bak-economics.com

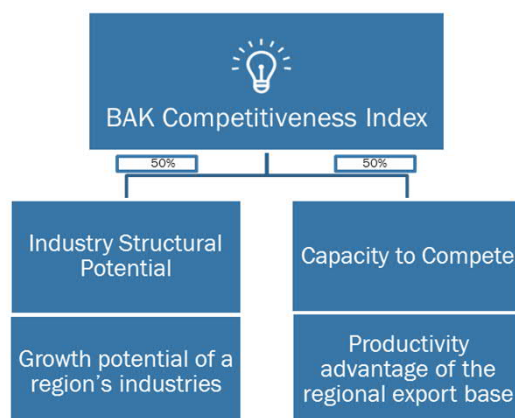
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Methodological Notes BAK Competitiveness Index

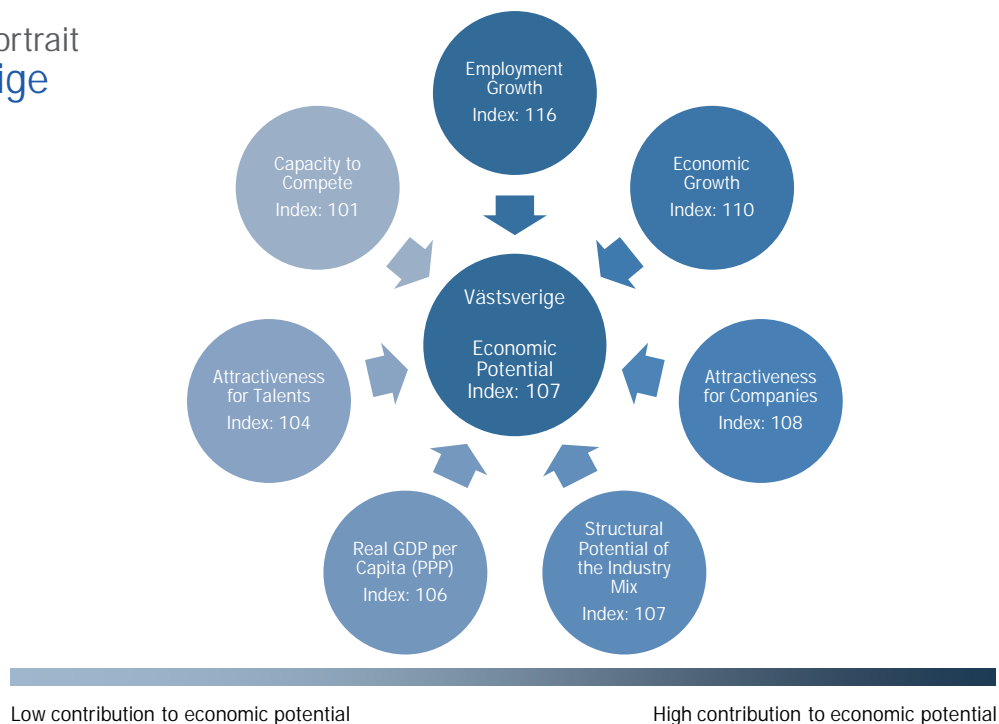
The Competitiveness Index is divided in two components: Industry Structural Potential and Capacity to Compete. The Industry Structural Potential focuses on the regional industry structure and its inherent potential for further growth. It measures the growth potential of industries until 2030 in percent. A regional concentration of industries with bright prospects for expansion enhances the potential for the region for substantial and sustainable growth and vice versa.

The main determinants for competitiveness are the productivity advantages of the export industries, measured as the productivity of the export base (PPP USD). In the long run, a more productive industry in a region should be able to gain market shares in the globalized economy and grow stronger than the same industry in another region when it is less productive. The Capacity to Compete captures the competitiveness of the region by summarising these productivity indicators for all the export oriented industries.

The average of all Territorial Level 2 (TL2) regions in Western Europe and the US is set to 100. The standard deviation of the variable of the same set is set to 10. Therefore, an index value of 110 means the region's economic potential is one standard deviation better than the average of all European and US TL2 regions. An index of 80 means it is two standard deviations below the average.



Regional Portrait Västsverige



Methodological Notes Regional Portrait

This illustration of the regional portrait shows the values of the sub-indices (Index 100 = average of benchmark regions (Western Europe 15 and USA)) for a region and their level of contribution to the overall economic potential of the region. The darker blue the bubbles is, the higher the index's contribution to the economic potential.

The BAK Performance Index is represented by the following three sub-indices:

- Real GDP per capita
- Economic growth
- Employment growth

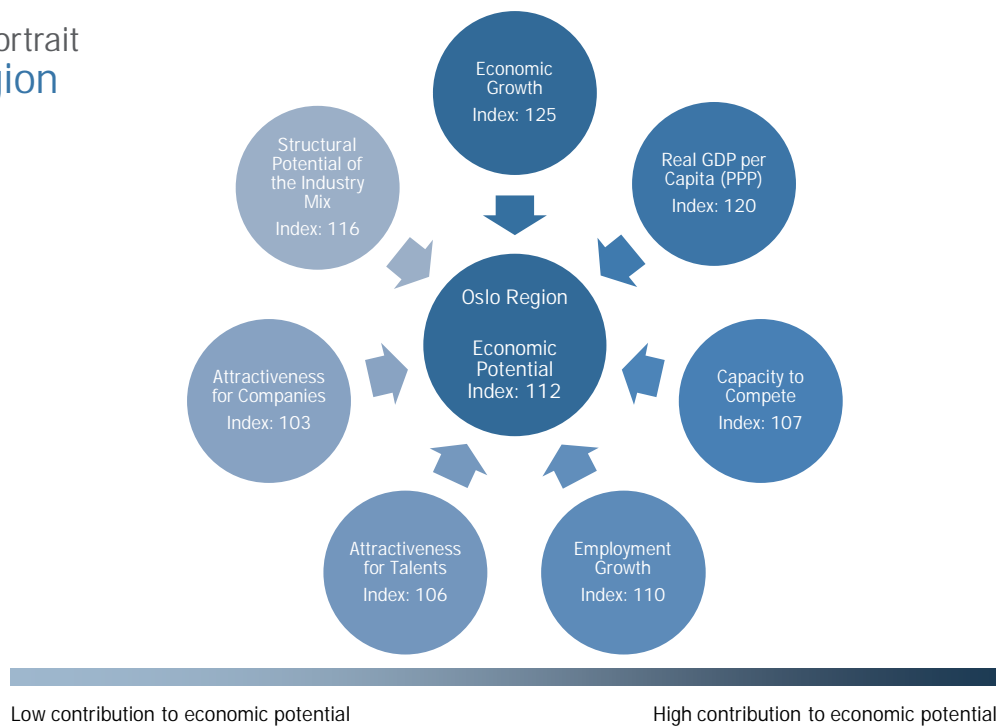
Real Gross Domestic Product (GDP) per capita (in USD PPP) is a core indicator of economic performance and measures the region's level of prosperity. Economic growth expressed in real terms captures the changes in economic performance, measured by changes in the volume of real GDP over the last 10 years. A region is successful whenever an increase in production creates new jobs. Employment growth captures this part of economic performance by looking at increases with respect to decreases in job creation over the last 10 years.

The BAK Attractiveness Index is divided into Attractiveness Indices for Companies and Talents. The Attractiveness Index for Companies comprises indicators in the fields of State, Business and Science. The Attractiveness Index for Talents includes further indicators in the fields of State, Business and Society.

The BAK Competitiveness Index is divided into two components:

- Industry Structural Potential (focus on regional industry structure and its inherent potential for further growth by 2030) and
- Capacity to Compete (productivity of the export base (in PPP USD)).

Regional Portrait Oslo Region



Methodological Notes Regional Portrait

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- Economic growth
- Employment growth

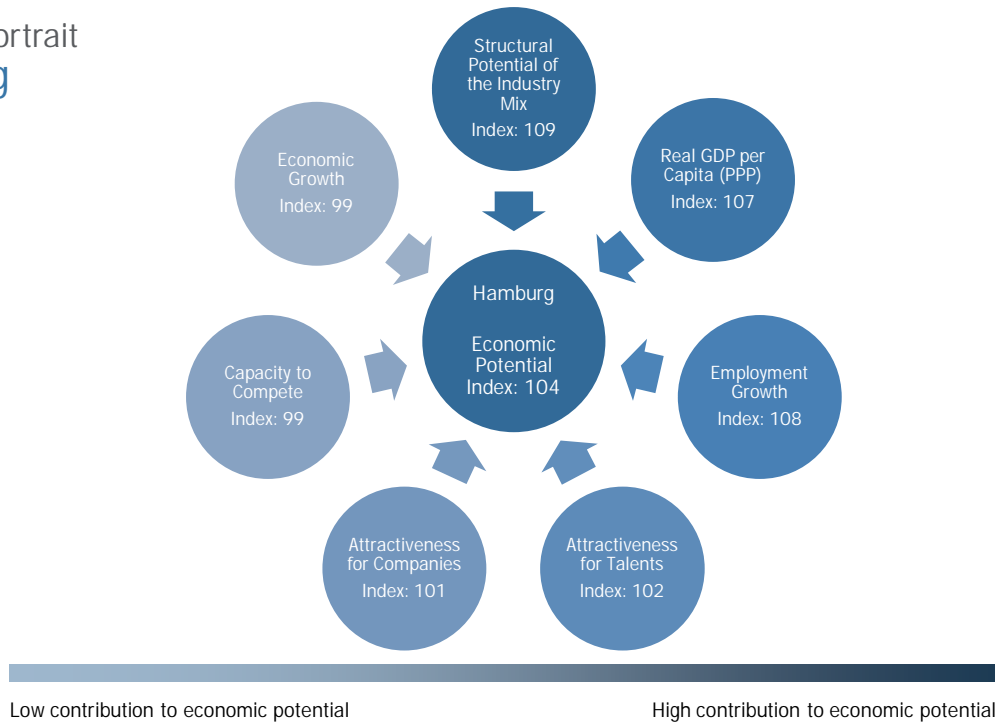
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Regional Portrait Hamburg



Methodological Notes Regional Portrait

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- Economic growth
- Employment growth

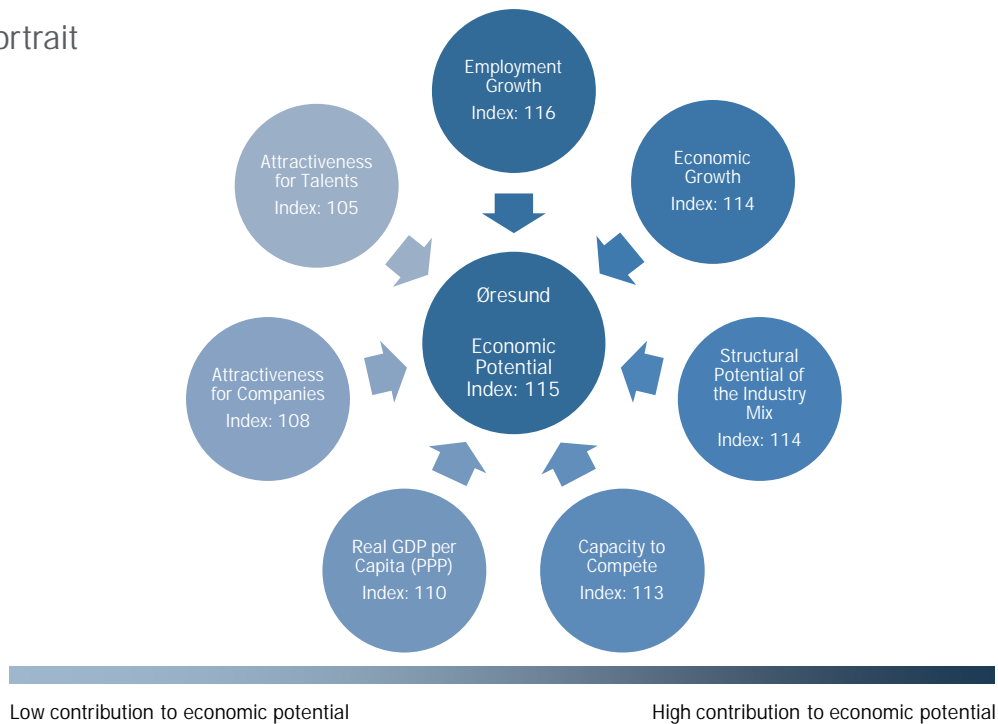
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The BAK Competitiveness Index is divided into two components:

- Industry Structural Potential (focus on regional industry structure and its inherent potential for further growth by 2030) and
- Capacity to Compete (productivity of the export base (in PPP USD)).

Regional Portrait Øresund



Methodological Notes Regional Portrait

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- Real GDP per capita
- Economic growth
- Employment growth

Real Gross Domestic Product (GDP) per capita (in USD PPP) is a core indicator of economic performance and measures the region's level of prosperity. Economic growth expressed in real terms captures the changes in economic performance, measured by changes in the volume of real GDP over the last 10 years. A region is successful whenever an increase in production creates new jobs. Employment growth captures this part of economic performance by looking at increases with respect to decreases in job creation over the last 10 years.

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Further Information

Definition of Benchmarking Regions

Region	Country	Typ	Description	BAKCode
Wien	AT	Espon	Metropolitan Region	ATxAxMWN
Stuttgart	DE	3	Spatial Planning Regions	DE1xx72x
FrankfurtRheinMain	DE	3	Spatial Planning Regions	DE7xx51x
Hamburg	DE	BAK	Metropolitan Region	DExAxMHA
Helsinki-Uusimaa	FI	2	Suuralueet/Storområden	FI1Bx
Lyon-St. Etienne	FR	BAK	BAK aggregate	FRxAxLYS
STRING	INT	BAK	BAK aggregate (incl. South Denmark)	INTxAxSTS
Oslo-Västsverige	INT	OECD	BAK aggregate	INTxAxOSV
Western Europe	INT	BAK	Group of Countries	INTxAxW15
Øresund	INT	AEBR	BAK aggregate	INTxAxORE
Milano	IT	BAK	BAK aggregate	ITxAxMMP
Seoul	KR	3	Special city	KR01x1xx
Oslo, Akershus and Östfold	NO	BAK	BAK aggregate	NOxAxOAO
Västsverige	SE	2	Riksområden	SE23x
Stockholm	SE	BAK	BAK aggregate	SExAxMSH
San Francisco Region	US	BAK	BAK aggregate	USxAxSSO