

Innovation in regions: R&D and patents

Innovation within OECD countries is highly concentrated in a few regions, often capital city regions.

Research and development expenditure in 2015 ranged from 6% of GDP to negligible proportions of regional GDP. In Korea, Sweden, Austria, Denmark, and Germany, expenditure on R&D was particularly high, with an average outlay of around 3% of GDP or more (Figure 1.16). In those countries regional differences are also substantial. For instance, around 5% of GDP is spent on R&D in Styria (Austria) and Baden-Württemberg (Germany), which is approximately five times and three and a half times higher than in Burgenland or Saxony-Anhalt, respectively.

In almost all OECD countries, R&D expenditure – especially for private sector R&D (Figure 1.17) – is higher in capital regions than in the rest of the country. In Sweden, Korea, or Hungary, the contrast between the capital and the other regions of the country with respect to private sector R&D expenditure is particularly marked.

The strong spatial concentration of research and development resources is even more accentuated in terms of patent applications. At the top of the distribution, more than 500 patent applications per million inhabitants are filed annually in North Brabant (Netherlands), Southern-Kanto (Japan), Stockholm (Sweden) or Massachusetts (United States) (Figure 1.19 and Figure 1.20). In stark contrast, all regions in many Eastern or Southern European countries such as Greece, Turkey, Latvia, or Poland fall significantly below 100 patent applications per million inhabitants per year. The biggest interregional differences

exist in the Netherlands and Japan, where the number of filed patent applications is 25 and 30 times higher in the most innovative region than in the least innovative region, respectively.

Throughout the OECD, considerable gender gaps in R&D employment persist (Figure 1.18). The gender gap in the R&D sector is 6 percentage points higher than the employment gender gap for all sectors in OECD regions. Even in countries and regions with relatively extensive R&D sectors, large gaps prevail. For example, the share of female R&D employees is 25 percentage points lower in Voralberg than in Vienna and around 20 percentage points lower in Drenthe than in Groningen. Only Latvia and Lithuania have higher female than male R&D employment.

Source

OECD (2018), OECD Regional Statistics (database), <http://dx.doi.org/10.1787/region-data-en>.

Reference years and territorial level

TL2 regions and year 2015 in 1.16 to 1.20.

Figure notes

1.16: 2015; Australia and United States, 2014.

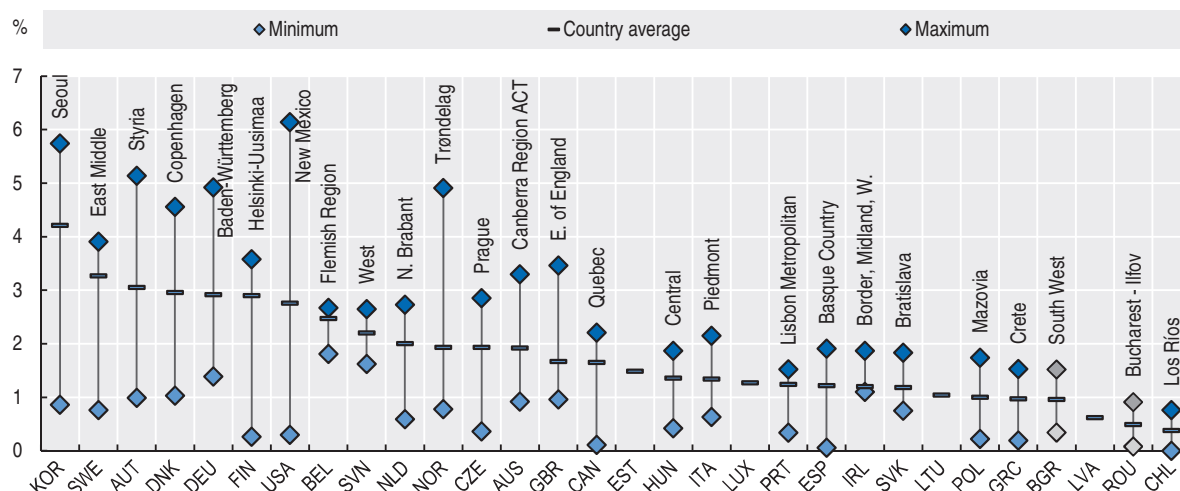
1.18: 2015; Norway, 2014.

1. REGIONS AS DRIVERS OF NATIONAL COMPETITIVENESS

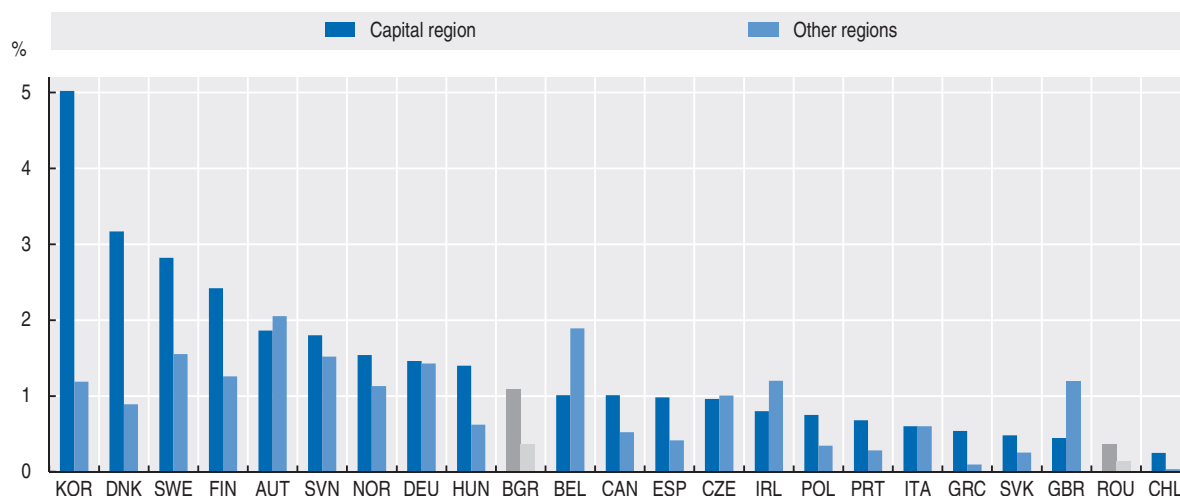
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1.16. Expenditure on R&D in regions (TL2)

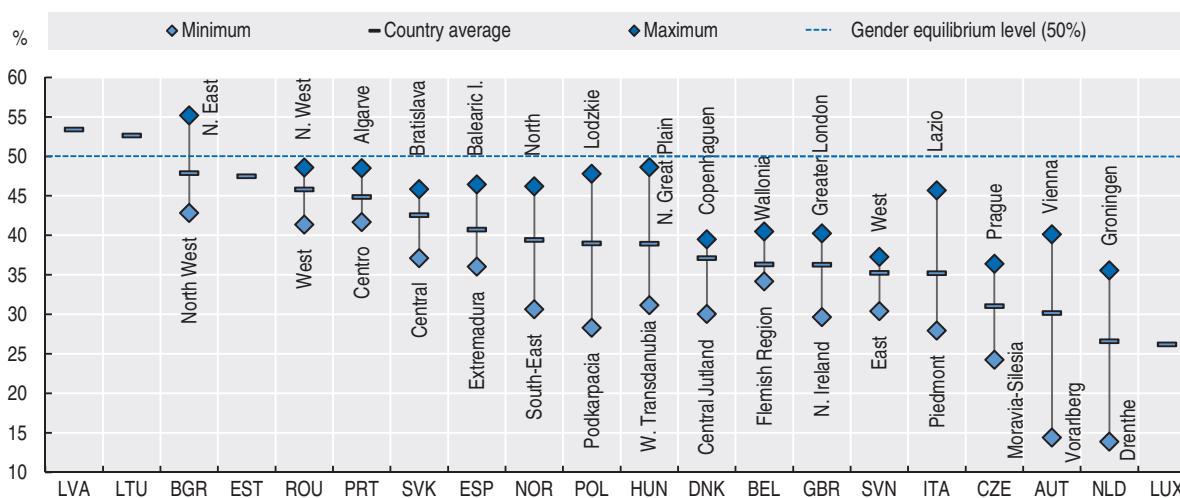
R&D expenditures as % of GDP



1.17. R&D expenditure as a % of GDP in capital regions



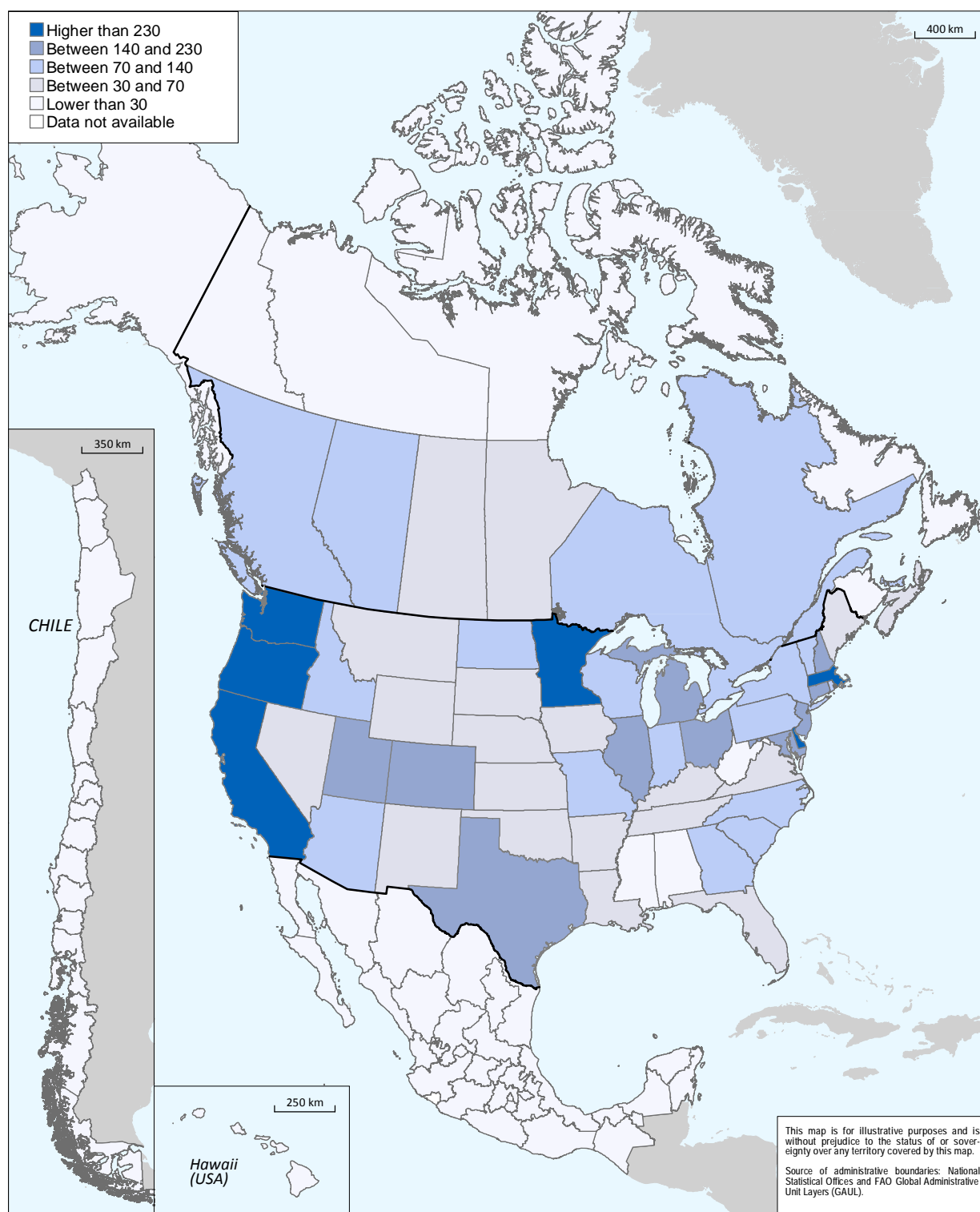
1.18. Regional differences in the % of women in R&D employment, 2015 (TL2)



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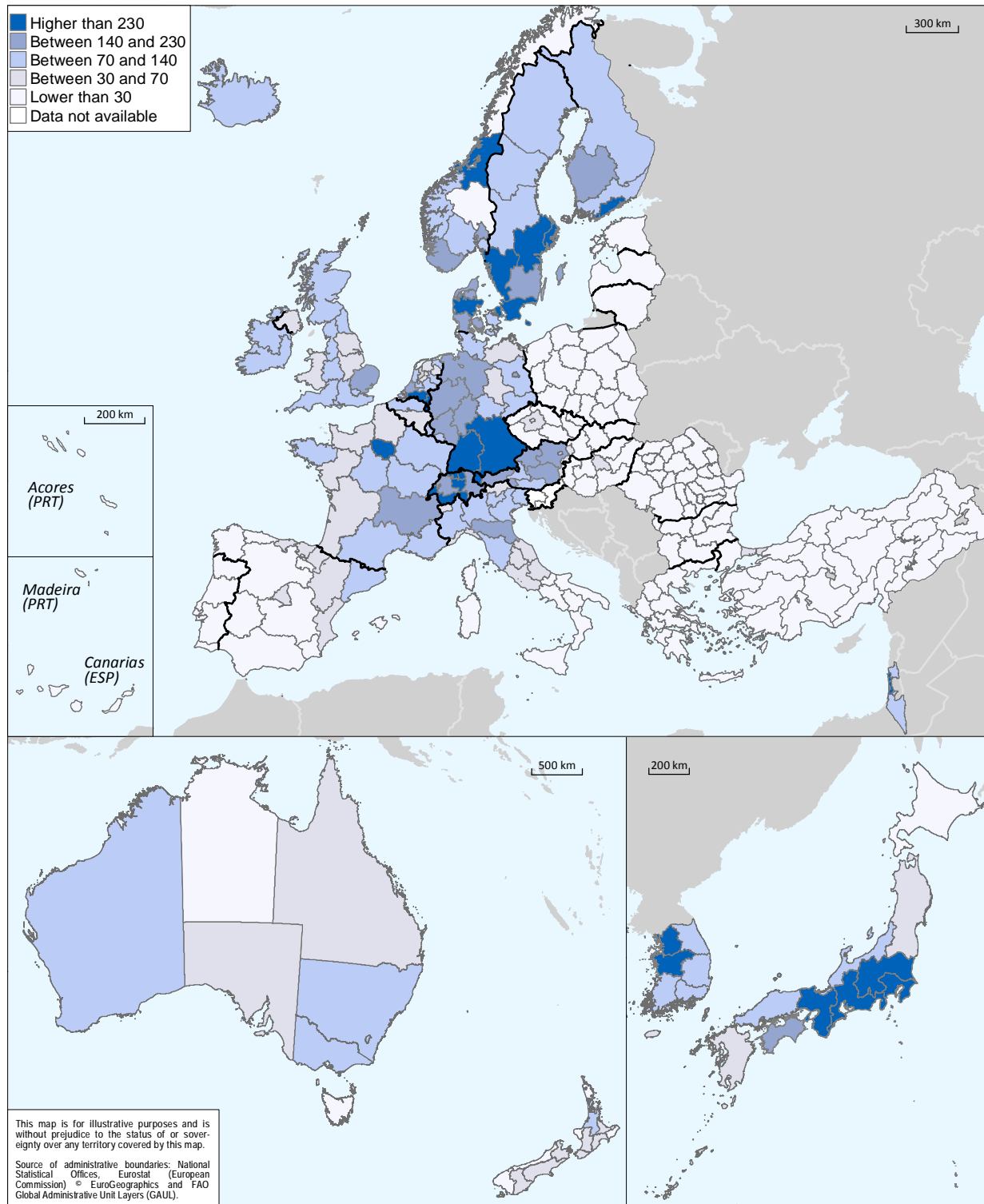
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1.19. Patents per million inhabitants: North America and Chile, 2015 (TL2)

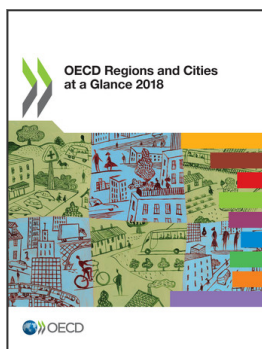


StatLink <http://dx.doi.org/10.1787/888933816706>

1.20. Patents per million inhabitants: Europe, Asia and Oceania, 2015 (TL2)



StatLink <http://dx.doi.org/10.1787/888933816725>



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