

Intellectual property rights-intensive industries and economic performance in Norway

Analysis performed by applying methodology and industry ranking developed for the European Union by the European Patent Office and the European Union Intellectual Property Office

Executive summary.

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About this study

Two studies covering the EU countries have looked at the contributions to gross domestic product (GDP), salary levels and the number of employees in intellectual property rights (IPR)-intensive industries. The first study was completed in 2013 (EPO and OHIM, 2013) and the second one in 2016 (EPO and EUIPO, 2016). IPR-intensive industries are defined as those having an above-average use of IPR per employee, as compared with other IPR-using industries¹.

A substantial part of the EU studies deals with establishing a ranking of industries in terms of their relative use of IPR. This comprises *i.a.* assignment of organisation numbers to owners of patents, registered trademarks and designs, in order to determine the distribution of IP rights on various industries according to their NACE industry classification.

Norway, not being an EU member state, is therefore not included in the EU studies. However, as a natural approach which also finds support in the EU studies, we may assume that the IPR intensity of the various industries is likely to apply also to Norway as a neighbour and EEA state². The assessment in the present report has therefore been undertaken following the methods outlined in the 2016 study, assessing contributions to GDP, employed persons, trade and other parameters for IPR-intensive industries in Norway based on data provided by Eurostat and Statistics Norway, using the ranking of industries found for EU countries (EPO and EUIPO, 2016).

The parts of the EU-study for which adequate data was not provided for Norway in the Eurostat database or comparisons which require access to the actual IP right figures for Norway, have been omitted.

Acknowledgements

NIPO is grateful for valuable discussions and encouragement provided by EUIPO regarding this study. The present report has been organised in a sequence similar to the most recent EU study (EPO and EUIPO, 2016) for the readers' convenience.

¹ For copyright, being a non-registered right, industries are ranked following a methodology developed by the World Intellectual Property Organization (WIPO), as explained in the studies (cf. EPO and EUIPO, 2016, pp 48-50).

² See the Methods section of the full report for a discussion of this assumption.

Executive summary

Main findings

- IPR-intensive industries generated 25.9% of all jobs in Norway in the period 2011-2013 [EU: 27.8%³]. This corresponds to 655 thousand jobs.

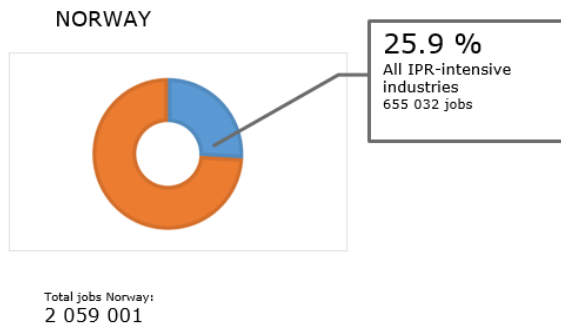


Figure 1: Contribution of IPR-intensive industries to employment

- The IPR-intensive industries generated on average more than 51% of total economic activity (GDP) in Norway in the same period, corresponding to € 196 billion. [EU: 42%, € 5 664 billion].

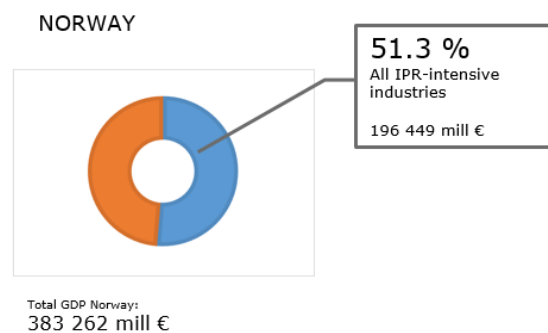


Figure 2: Contribution of IPR-intensive industries to GDP

- IPR-intensive industries paid much higher wages than other industries, with a wage premium of 53% over other industries (2013 figures). [EU: 46%].
- The share of the total GDP attributed to IPR-intensive industries related to oil and gas extraction amount to 23% alone.
- The share of jobs created in Norway by foreign companies outside the EU is 8.1% [EU: 8.7%], the share of jobs created by EU companies 16.9% [EU, non domestic EU-countries: 11.8%] and domestic companies 75% [EU: 79.5%].

IPR-intensive industries in the Norwegian economy

As outlined in the EU studies, IPR-intensive industries are those with an above-average use of IPR per employee, as compared with other IPR-using industries. These industries are concentrated in manufacturing, technology and business services sectors.

³ All figures for the European Union in the following are taken from the 2016 study [EPO and EUIPO, 2016]

The EU studies emphasise that most industries use IP rights to some extent, and that the studies therefore depict only the part of the industries to which IP rights contribute most.

The most important results are summarised in the following. More results are given in the results sections of the complete report, which also provides details regarding the methods.

IPR-intensive industries	Employment (direct) NO	%	Employment (direct) EU-28	%
Trademark	487 350	18.8	45 789 224	21.2
Design	193 319	7.5	25 662 683	11.9
Patent	252 421	9.7	22 268 215	10.3
Copyright	187 871	7.3	11 630 753	5.4
GI	8 137	0.3	n/a	n/a
PVR	3 864	0.1	1 018 754	0.5
All IPR-intensive	671 750	25.9	60 032 200	27.8

Table 1: Direct contribution of IPR-intensive industries to employment, 2011-2013 average

IPR-intensive industries in Norway are responsible for 25.9% of the employment in Norway (employed persons), a slightly lower figure than the EU average of 27.8%. Note that some industries are intensive in more than one IP right, and the sum of the figures for each IP right will therefore be higher than the figure for all IPR-intensive industries, for which industry contributions are counted only once.

Gross domestic product (GDP) is the most common measure of economic activity for a country or groups of countries, and is the total value of the goods and services produced during a given period.

An industry's contribution to the GDP is used to express its performance in this study. The table below sums up the GDP contributions for the various IP right-intensive industries as annual averages for the years 2011-2013.

IPR-intensive industries	Value added/GDP All industries (€ million) NO	Share of total GDP % NO	Value added/GDP (€ million) EU 28	Share of total GDP % EU 28
Trademark	172 072	44.9	4 812 310	35.9
Patent	126 454	33.0	2 035 478	15.2
Design	22 506	5.9	1 788 811	13.4
Copyright	23 765	6.2	914 612	6.8
GI	1 127	0.29	18 109	0.1
PVR	691	0.18	51 710	0.4
All IPR-intensive	196 449	51.3	5 664 168	42.3
Total	383 262		13 387 988	

Table 2: Contribution of IPR-intensive industries to GDP, 2011-2013 average.

A characteristic feature of the Norwegian economy is the high contribution of the oil and gas industries. The share of the total GDP attributed to IPR-intensive industries related to oil and gas extraction alone amount to 23.1%, or € 88.5 billion.

The table below shows average weekly wages for 2013 calculated from the annual personnel cost figures found in Eurostat's SBS database. The ratio between annual costs and weekly

average wages for the EU (all industries) has been used to determine average weekly wages for Norway as well, to ensure comparable figures.

The average personnel cost levels differ markedly between Norway and the EU average, with € 1 485 and € 629, respectively. However, the wages in the IPR-intensive industries are higher than in the non-IPR-intensive industries also in Norway, with € 1 930 as compared to € 1 260 for non-IPR-intensive industries (in EU € 776 and € 530, respectively).

IPR-intensive industries	Wages NO (weekly average €)	Premium (compared to non-IPR intensive industries) %	Wages EU-28 (weekly average €)	Premium (compared to non-IPR intensive industries) %
Trademark	1 990	58	783	48
Patent	2 383	89	895	69
Design	1 562	24	732	38
Copyright	1 772	41	871	64
GI	1 744	38	692	31
PVR	1 640	30	n/a	n/a
All IPR-intensive	1 930	53	776	46
Non-IPR-intensive	1 260		530	
All industries (included in SBS)	1 485		629	

Table 3: Average personell costs in IPR-intensive industries, 2013.

This report also includes a comparison, not given in the EU studies, of the average level of national wages for a selection of European countries and the EU average. The differences between countries are more pronounced than the differences between IPR-intensive and non-intensive industries for each country. This suggests that the national salary levels are strongly influenced also by other factors (see the Wages section in the full report for details).

IPR-intensive industries contribute to a major part of the trade both in Norway and in the European Union. The IPR-intensive exporting industries in Norway, in particular the oil and gas extraction industries, contribute significantly to the export, as seen in Table 4 below.

	NO (2013 only)			EU (2013 only)		
	Exports (€ million)	Imports (€ million)	Net exports (€ million)	Exports (€ million)	Imports (€ million)	Net exports (€ million)
Total IPR-intensive	115 931	68 650	47 281	1 605 516	1 509 099	96 417
Non-IPR-intensive	26 884	24 039	2 845	117 561	256 047	-138 487
Total trade	142 815	92 688	50 126	1 723 077	1 765 147	-42 069

Table 4: External trade in IPR-intensive industries for Norway and EU (2013 figures only).

The EU studies have looked at the number of jobs in IPR-intensive industries that can be attributed to companies based in other EU countries and outside the EU. The number of employees in IPR-intensive industries for a country or region is estimated from the share of jobs created by companies with domestic and foreign ownership (EU and outside).

Norway as an EEA state also has strong industrial and commercial relations with the EU. The table below shows that the share of jobs in IPR-intensive industries attributable to companies based in EU member states is higher in Norway (16.9%) than for the EU member states on average (11.8% originating from other EU-member states). The figures show that the domestic share of job creation in IPR-intensive industries is quite high in Norway, 75%, but

lower than the nearly 80% EU average. The share of jobs created by companies based outside the EU for Norway and the EU differ only slightly, with 8.1% and 8.7%, respectively.

	Jobs attributable to companies based in:		Total employment IPR-intensive industries	EU-share %	Non-EU share %	Total non-domestic share %	Domestic share %
	EU member states	Non-EU countries					
NO	101 966	48 786	601 889	16.9	8.1	25.0	75.0
EU28				11.8	8.7	20.5	79.5

Table 5: Jobs attributed to foreign and domestic companies in IPR-intensive industries. 2011-2013 average figures for Norway and the EU.

An analysis comparing Norway and EU member states has also been included, with plots of the share of GDP versus the share of total employment in IPR-intensive industries for a selection of IP rights and the IPR-intensive industries in total. EU figures are taken from the 2016 report (EPO and EUIPO, 2016 p 58). For patents and design registrations a clear correlation is observed, less so for the other IP rights. Norway is an outlier both for patents and trademarks (see the section *Analysis comparing Norway and EU member states* in the full report for details).

This study looks at the contribution at the level of industries, and does not analyse the value of IPR for individual companies. Importantly, it does not allow for causal relationships between intellectual properties and the various economic variables studied, as underlined in the 2016 EU study. The effects of the different IP protection forms are not compared, as they serve different purposes, are used in different sectors of the economy and have different scope. Companies may also rely on trade secrets or unregistered intellectual properties that are not captured by this type of study (EPO and EUIPO, 2016, p 23). When interpreting the findings one should keep these points in mind.

Nevertheless, the results demonstrate that IPR-intensive industries have higher contributions to GDP and pay higher wages than the rest of the industries also in Norway.

Methodology and data

The methodology of this study is mainly based on the 2016-study of IPR-intensive industries in the EU (EPO and EUIPO, 2016), but is limited to the assessment of IPR-intensive industries in Norway and their contribution to employment, GDP and other economic indicators.

The ranking of IPR-intensive industries of the 2016-study is used also for Norway, as the EU-study lends support to this approach: «*A fundamental assumption behind the methodology employed in the present study is that the degree to which an industry is IPR-intensive is an intrinsic characteristic of that industry, regardless of where it is located*⁴» (EPO and EUIPO, 2016, p 13).

⁴ Geographical indications are analysed on a country-by-country basis

Eurostat is the most important data source, but also data from Statistics Norway has been used. More details on the sources to the data for the different variables are found in the Methods section of the full report, but essentially follows the 2016 EU study (EPO and EUIPO, 2016, pp 36-37 and pp 67-109).

Literature

Intellectual property rights intensive industries: contribution to economic performance and employment in the European Union. Industry-Level Analysis Report, September 2013; EPO and OHIM, 2013.

Intellectual property rights intensive industries and economic performance in the European Union. Industry-Level Analysis Report, October 2016, Second edition; EPO and EUIPO, 2016.

Database links

EUROSTAT [Structural Business Statistics](#)

- Annual enterprise statistics for special aggregates of activities (NACE Rev. 2) (sbs_na_sca_r2)
- Annual detailed enterprise statistics for industry (NACE Rev. 2, B-E) (sbs_na_ind_r2)
- Annual detailed enterprise statistics for construction (NACE Rev. 2, F) (sbs_na_con_r2)
- Annual detailed enterprise statistics for trade (NACE Rev. 2 G) (sbs_na_dt_r2)
- Annual detailed enterprise statistics for services (NACE Rev. 2 H-N and S95) (sbs_na_1a_se_r2)
- Foreign control of enterprises by economic activity and a selection of controlling countries (from 2008 onwards) (fats_g1a_08)

EUROSTAT [Annual National Accounts](#)

- Gross value added and income by A*10 industry breakdowns (nama_10_a10)

Statistics Norway

- NACE two-digit (division) employment: Tabell [08536](#): Sysselsatte per 4. kvartal, etter bosted, arbeidssted, kjønn og næring (88 grupper, SN2007) (K)
- NACE 4-digit (class) level employment: Tabell [11606](#): Sysselsatte per 4. kvartal, etter bosted, arbeidssted, alder og næring (5-siffernivå, SN2007) (F)
- Foreign trade: Tabell [09297](#): Utenrikshandel med varer, etter produktgruppe (CPA) (mill. kr)