

# REGIONAL NETWORK

New sector classification and new weights in Norges Bank's regional network



NORGES BANK

## Background

Up to and including the 1/2015 survey, the sector classification for Norges Bank's regional network comprised the main series manufacturing, construction, retail trade, services and the local government and hospital sector. Manufacturing was divided into the subsectors domestically-oriented manufacturing, export industry and oil service industry. The services sector was divided into the subsectors commercial services and household services. The oil service industry only comprised manufacturing enterprises that supply petroleum-related goods to the Norwegian market. This means that exporters in petroleum-related manufacturing were defined as part of the export industry. Furthermore, petroleum-related turnover in service enterprises was defined as services.

In recent years, there has been a sharp increase in petroleum-related exports and services. Since these activities were included in sectors that also contain non-petroleum-related activities, it was difficult to see the overall effect of the petroleum sector on the Norwegian economy in the numbers from Norges Bank's regional network. Similarly, it was difficult to follow developments in the traditional export industry and non-petroleum-related services. To obtain a clearer overview of the direct effects of the petroleum sector on the Norwegian economy, we have now gathered the petroleum-related enterprises in a new and broader "oil service industry". The new sector covers enterprises located in Norway that deliver petroleum-specific goods *and* services to oil companies and other oil service companies in Norway *and* in other countries. The new oil service sector thus includes both petroleum-specific manufacturing and petroleum-specific services and is divided into subsectors depending on whether they primarily serve the domestic market or the export market.

In connection with the update of the weights used in Norges Bank's regional network, the method for calculating the weights has also been changed somewhat. The weights for the main sectors in the regional network are calculated by using the national accounts and regional accounts, but the breakdown by subsector was largely determined on the basis of judgment. In the calculation of the new weights, the desire has been to use statistics to a greater extent and to rely less on assessments based on judgment. For the new weights, the national accounts and regional accounts for 2012 are used, while the previous weights were based on account figures from 2009.

## New sector structure

The "oil service industry" has been added to the sector structure as a new main sector. The oil service industry comprises enterprises that deliver petroleum-specific goods or services to Norwegian or foreign enterprises.

In the ongoing analysis work on Norges Bank's regional network, the individual enterprise is categorised on the basis of what it produced and for which markets. Many regional network enterprises deliver goods or services to several markets. Such enterprises may face different developments in the various markets they deliver to. Thus, a single enterprise can be included in more than one sector in the regional network. For example, an enterprise may export both petroleum-specific and non-petroleum specific products.

In such cases, the enterprise's development for its non-petroleum-specific products will be included in the series for the export industry, and its development for its petroleum-related products will be included in the series for the export-oriented oil service industry.

Chart 1 below shows the changes to the sector structure in *manufacturing* and *services*. The other main sectors, *construction*, *retail trade* and the *local government and hospital sector* are unchanged from the previous structure and are thus omitted from the chart.

Chart 1 – Changes to industries in Norges Bank’s regional network

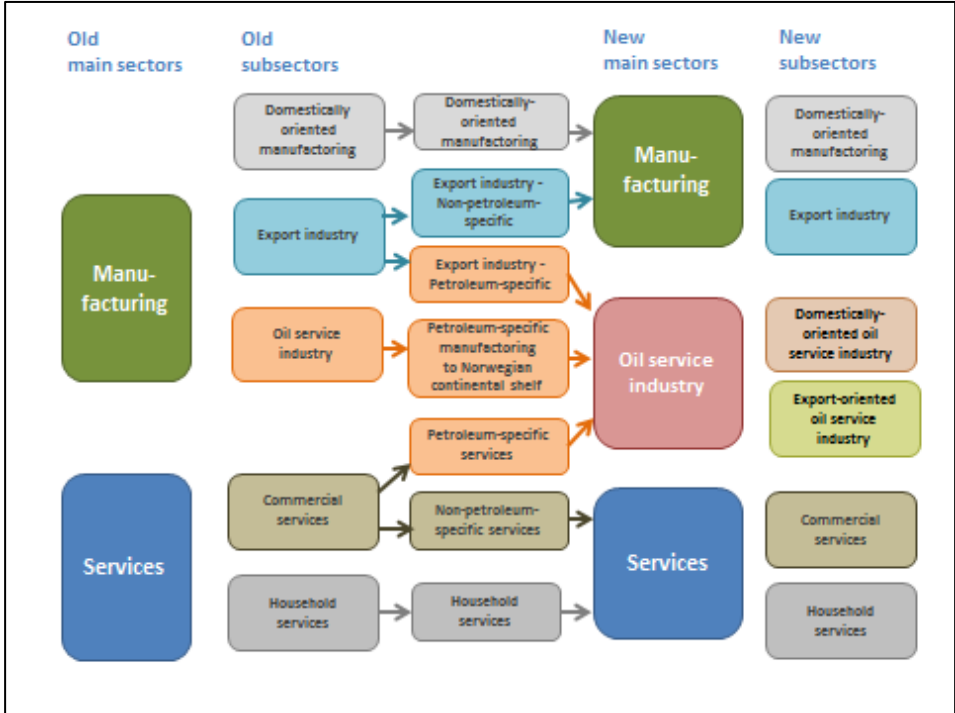


Table 1 below shows the new regional network sector structure.

Table 1 - New sector classification in Norges Bank’s regional network

Main sector	Subsector
Manufacturing	Domestically-oriented manufacturing*
	Export industry*
Oil service industry	Domestically-oriented oil service industry
	Export-oriented oil service industry
Construction	
Retail trade	
Services	Commercial services**
	Household services
Local government and hospital sector	

\*Excluding petroleum-specific manufacturing

\*\*Excluding petroleum-specific services

## Weight types

In Norges Bank's regional network there are three categories of weights: *output weights*, *employment weights* and *investment weights*.

- *Output weights* are used to calculate the aggregated variables output, market prospects, prices, profitability and capacity utilisation.
- *Employment weights* are used to calculate the aggregated variables employment, labour supply and annual wage growth.
- *Investment weights* are used to calculate the aggregated variables for investment.

For all three categories of weights, *regional weights*, *national sector weights* and *regional sector weights* have been calculated.

- *Regional weights* are the individual regions' shares of the variable (gross product, employment or investment) for a sector relative to the country as a whole.
- *Regional sector weights* are the individual sectors' shares of the variable in a region.
- *National sector weights* are the individual sectors' shares of the variable for the country as a whole.

## Calculation of weights for sectors and subsectors

The weights for the main sectors in Norges Bank's regional network were previously calculated by using the national and regional accounts<sup>1</sup>. The manufacturing sector's share of exports was calculated with the aid of the export accounts. The breakdown between domestically-oriented manufacturing and the oil industry supplier sector and the breakdown between household services and commercial services was determined on the basis of judgment.

In the calculation of the new weights, our desire has been to continue to use the national and regional accounts as a basis. At the same time, we wanted to use account figures to a greater extent also in the calculation of subsector weights.

The oil service industry is not a separate sector in the national accounts. However, Statistics Norway has an overview of how much the various subsectors in the national accounts deliver to the petroleum sector. The criterion for being defined as the "oil service industry" means that in 2012, at least half of the sector's domestic delivery of gross output went to the industries oil production, pipeline transport, the supplier segment, service activities incidental to oil and gas, oil platform and module construction and shipbuilding. In this context, domestic deliveries are defined as gross output minus deliveries for export, changes in stocks and deliveries to other enterprises in the same sector. The calculations were done by Statistics Norway on the basis of cross-sector data for the entire country for 2012. This means that in the calculation of the weights, we have defined the following subsectors in the national accounts as the oil service industry:

- Supplier segment
- Service activities incidental to oil and gas
- Oil platform and module construction
- Shipbuilding
- Architectural activities and technical consultancy and technical testing and analysis

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<sup>1</sup> In *Staff Memo* No. 5/2010, Kjetil Martinsen and Fredrik Wulfsberg document the method for calculating and averaging the regional and sector weights as they were used for Norges Bank's regional network up until 2015.

In the calculation of the weights, the other manufacturing and service subsectors have been defined as manufacturing and services, respectively.

It is important to note that this classification is only used in the calculation of the weights. In the ongoing analysis work on Norges Bank's regional network, the individual enterprise is placed in one or more sectors, depending on what the enterprise produces and the markets it delivers goods or services to.

### *Calculation of export shares for manufacturing and the oil service industry*

The export shares in manufacturing and the oil service industry are calculated in several steps. On the basis of cross-sector data from the national accounts,<sup>2</sup> Statistics Norway first calculated how the deliveries (gross output) from manufacturing and the oil service industry was broken down by export market and domestic market for the entire country. The various national export shares were then used to break down the gross products by export deliveries in the corresponding manufacturing and oil service industries in each county.<sup>3</sup> The calculated gross products were then summed to aggregate values for export shares in manufacturing and the oil service industry in each region. The regional shares of the export industry and the oil service industry are therefore determined by the size of the various subsectors in the different regions.

### *Calculation of households' share of services*

The gross product in the main sector "Services" has been broken down into the subsectors "Commercial services" and "Household services".

The calculation was performed in two steps. First, the share of gross output delivered to households was calculated for all subsectors in services in the national accounts. Then the national shares for household services in each subsector were used as the basis for calculating the regions' shares of household services from the regional accounts. The regional shares of household services are therefore determined by the size of the subsectors in the various regions.

## **Conclusion**

The introduction of new series with related new weights has resulted in a break in the published aggregates. In order to compare the series from the 2/2015 survey with the 1/2015 survey, we have calculated the values for the 1/2015 survey using the new sector structure and new weights. The difference between the two versions of the 1/2015 survey shows that the new sector structure and the new weights result in minor changes in the aggregates for the Norwegian economy as a whole. Table 2 shows the national aggregates using the new weights and new sector structure and compares them with the old weights and old sector structure.

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<sup>2</sup> The calculations of the subsectors in manufacturing, the oil service industry and services are based on modified cross-sector data for 130 industries. The cross-sector data are calculated on the basis of a number of assumptions, including that different uses of a product have the same fixed ratio of supplier industries. The modifications in Statistics Norway's cross-sector data include the treatment of purchases/sales of used fixed assets and foreigners' consumption in Norway.

<sup>3</sup> This implies an assumption that the ratio between gross output and gross product is fixed in all counties in an industry.

*Table 2 – Aggregated values of regional network survey 1/2015, new and old values.*

	<b>New aggregated values (New weights and new industry structure)</b>	<b>Old aggregated values (Old weights and old industry structure)</b>
Output growth, past 3 months	0,52	0,62
Expected output growth, next 6 months	0,30	0,39
Employment growth, past 3 months	0,09	-0,03
Employment growth, next 3 months	0,07	0,05
Capacity constraints	0,24	0,23
Labour supply	0,12	0,12
Investment growth next 12 months	0,21	0,44
Annual wage growth	3,04	3,04
Selling prices, change past 12 months	0,53	0,59
Selling prices, expected change in rise in prices next 12 months	53,53	54,09
Profitability, change in operating margins	0,12	-0,03

New and old weights are shown in the appendix.

## *Table appendix. New and old weights.*

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*Table 3 – National sector weights on output – Main sectors in per cent.*

New weights for the main industries		Old weights for the main industries	
Manufacturing	16,22	Manufacturing	21,59
Oil service industry	9,57		
Construction	12,47	Construction	10,52
Retail trade	15,84	Retail trade	18,81
Services	45,90	Services	49,08
Sum	100	Sum	100

*Table 4 – National sector weights on output – The subsectors' share of the main sectors. In per cent.*

New weights for the subsectors		Old weights for the subsectors	
		Domestically-oriented manufacturing	46,39
Domestically-oriented manufacturing	71,02	+ Export industry	42,87
+ Export industry	28,98	+ Oil service industry	10,74
= Manufacturing	100	= Manufacturing	100
Domestically-oriented oil services	72,69		
+ Export-oriented oil service industry	27,31		
= Oil services	100		
Commercial services	77,23	Commercial services	64,97
+ Household services	22,77	+ Household services	35,03
= Services	100	= Services	100



*Table 5 – New regional weights on output – The regions' share of output in each sector. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East	Sum
Manufacturing	9,22	7,14	5,10	12,37	22,27	18,87	25,02	100
Domestically-oriented manufacturing	8,38	7,72	5,91	11,97	22,77	17,58	25,67	100
Export industry	11,29	5,73	3,12	13,36	21,03	22,02	23,45	100
Oil service industry	1,59	5,17	0,80	12,83	42,33	6,83	30,44	100
Domestically-oriented oil service industry	1,56	5,66	0,94	8,48	41,39	6,84	35,11	100
Export-oriented oil services	1,67	3,84	0,43	24,41	44,83	6,80	18,01	100
Construction	7,77	8,34	6,11	6,39	20,82	13,49	37,07	100
Retail trade	5,74	6,29	4,98	5,46	15,45	10,84	51,25	100
Services	5,45	7,44	4,15	4,76	17,91	7,87	52,43	100
Commercial services	5,20	7,48	3,90	4,82	18,21	7,85	52,54	100
Household services	6,30	7,28	4,96	4,57	16,87	7,95	52,06	100

*Table 6 – Old regional weights on output – The regions' share of output in each sector. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East	Sum
Manufacturing	5,52	6,15	5,32	11,11	24,88	18,14	28,89	100
Domestically-oriented manufacturing	5,05	7,73	6,23	10,06	21,52	15,17	34,24	100
Export industry	5,99	5,01	4,41	12,54	25,52	21,52	25,01	100
Oil service industry	2,60	3,58	3,33	10,82	38,71	17,48	23,47	100
Construction	9,56	7,87	7,16	6,40	19,09	14,67	35,26	100
Retail trade	5,60	6,45	4,92	4,63	15,06	10,93	52,40	100
Services	5,32	7,06	4,67	4,35	18,26	8,32	52,02	100
Commercial services	4,53	6,75	3,62	4,16	18,94	8,05	53,95	100
Household services	6,80	7,65	6,59	4,71	16,99	8,83	48,43	100

*Table 7 – New regional sector weights on output – Main sectors’ share of production in each region. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East
Manufacturing	24,82	16,31	19,00	28,33	17,26	28,54	9,27
Oil service industry	2,53	6,96	1,76	17,34	19,37	6,10	6,66
Construction	16,08	14,64	17,49	11,25	12,40	15,68	10,56
Retail trade	15,08	14,04	18,09	12,21	11,69	16,00	18,54
Services	41,49	48,05	43,67	30,87	39,28	33,68	54,97
Sum	100	100	100	100	100	100	100

*Table 8 - New regional sector weights on output – The subsectors’ share of the main sectors in each region. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East
Domestically-oriented manufacturing	64,53	76,75	82,28	68,70	72,63	66,17	72,84
+ Export industry	35,47	23,25	17,72	31,30	27,37	33,83	27,16
= Manufacturing	100	100	100	100	100	100	100
Domestically- oriented oil service industry	71,31	79,68	85,29	48,05	71,08	72,80	83,84
+ Export-oriented oil service industry	28,69	20,32	14,71	51,95	28,92	27,20	16,16
= Oil service industry	100	100	100	100	100	100	100
Commercial services	73,66	77,70	72,73	78,14	78,55	77,00	77,39
+ Household services	26,34	22,30	27,27	21,86	21,45	23,00	22,61
= Services	100	100	100	100	100	100	100

Table 9 – Old regional sector weights on output – Main sectors' share of production in each region. In per cent.

	North	Mid-Norway	In-land	North west	South west	South	East
Manufacturing	20,3	19,4	22,4	39,5	28,0	33,8	13,8
Construction	17,2	12,1	14,7	11,1	10,5	13,3	8,2
Retail trade	18,0	17,8	18,1	14,3	14,8	17,7	21,7
Services	44,6	50,7	44,8	35,1	46,7	35,2	56,3
Sum	100	100	100	100	100	100	100

Table 10 – Old regional sector weights on output – The subsectors' share of the main sectors in each region. In per cent.

	North	Mid-Norway	In-land	North west	South west	South	East
Domestically-oriented manufacturing	45,11	58,61	56,25	41,65	39,81	38,8	54,54
+ Export industry	49,51	35,09	36,80	47,98	43,62	50,9	36,81
+ Oil service industry	5,38	6,29	6,95	10,37	16,57	10,3	8,65
= Manufacturing	100	100	100	100	100	100	100
Commercial services	55,28	62,05	50,48	62,1	67,40	62,8	67,39
+ Household services	44,72	37,95	49,52	37,9	32,60	37,2	32,61
= Services	100	100	100	100	100	100	100

*Table 11 – National sector weights on employment in per cent.*

New weights		Old weights	
Manufacturing	11,2	Manufacturing	13,9
Oil service industry	5,0		
Construction	9,4	Construction	8,9
Retail trade	17,1	Retail trade	15,8
Services	28,7	Services	32,3
Local government and hospital sector	28,6	Local government and hospital sector	29,1

*Table 12 – New regional weights on employment – The regions' share of the employment in each region. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East	Sum
Manufacturing	10,1	8,4	7,0	12,7	20,5	16,4	24,8	100
Oil service industry	2,7	6,6	1,2	11,6	40,7	8,4	28,8	100
Construction	8,7	8,2	7,3	7,0	19,3	14,3	35,1	100
Retail trade	7,7	7,6	6,6	6,3	17,0	13,2	41,7	100
Services	6,9	7,9	5,2	5,2	18,2	9,6	47,0	100
Local government and hospital sector	12,3	9,0	8,2	8,2	17,6	13,7	31,0	100

*Table 13 – Old regional weights on employment – The regions' share of the employment in each region. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East	Sum
Manufacturing	7,0	7,6	6,5	11,1	27,8	15,3	24,7	100
Construction	9,5	9,0	7,8	7,1	19,3	14,7	32,6	100
Retail trade	8,0	7,7	6,5	6,4	17,0	13,2	41,1	100
Services	8,0	8,4	5,7	6,0	17,8	11,1	42,9	100
Local government and hospital sector	11,6	9,0	7,7	6,9	17,9	12,7	34,1	100

*Table 14 – New regional sector weights on employment – The sectors’ share of the employment in each region. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East
Manufacturing	12,8	11,5	12,2	19,0	11,9	14,7	7,5
Oil service industry	1,5	4,0	0,9	7,7	10,5	3,3	3,9
Construction	9,3	9,5	10,6	8,8	9,4	10,8	9,0
Retail trade	14,7	15,8	17,3	14,2	15,1	17,9	19,2
Services	22,2	27,7	23,0	19,6	27,0	21,8	36,4
Local government and hospital sector	39,5	31,4	36,0	30,8	26,1	31,3	23,9
Sum	100	100	100	100	100	100	100

*Table 15 – Old regional sector weights on employment – The sectors’ share of the employment in each region. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East
Manufacturing	9,6	11,2	12,1	19,5	18,0	14,9	8,2
Construction	8,2	8,3	9,1	7,8	7,9	9,0	6,8
Retail trade	13,6	14,0	15,0	13,9	13,6	15,9	16,9
Services	32,8	36,8	31,6	31,5	34,4	32,3	42,5
Local government and hospital sector	35,7	29,8	32,2	27,4	26,1	27,9	25,6
Sum	100	100	100	100	100	100	100

*Table 16 – National sector weights on investments in per cent.*

New weights		Old weights	
Manufacturing	12,5	Manufacturing	7,8
Oil service industry	9,4		
Retail trade	6,6	Retail trade	5,8
Services	47,4	Services	40,8
Local government and hospital sector	24,1	Local government and hospital sector	45,7

*Table 17 – New sector weights on investments – The regions' share of the investments in each sector. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East	Sum
Manufacturing	11,5	7,4	4,5	11,0	22,0	17,5	26,0	100
Oil service industry	0,4	5,0	0,4	8,6	69,5	7,0	9,1	100
Retail trade	11,4	8,4	5,5	5,9	18,4	11,5	38,9	100
Services	8,0	7,6	3,4	6,2	16,7	7,2	50,8	100
Local government and hospital sector	11,1	9,7	8,1	8,7	20,6	13,8	28,1	100

*Table 18 – Old sector weights on investments – The regions' share of the investments in each sector. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East	Sum
Manufacturing	18,2	5,4	4,6	10,5	18,2	15,0	28,3	100
Retail trade	6,6	7,6	4,0	5,9	16,4	8,3	51,2	100
Services	11,7	8,4	7,0	6,2	15,3	11,1	40,4	100
Local government and hospital sector	18,2	5,4	4,6	10,5	18,2	15,0	28,3	100



*Table 19 – New regional sector weights on investments - The sectors' share of the investments in each region. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East
Manufacturing	16,6	11,8	12,5	18,1	11,8	21,1	8,7
Oil service industry	0,4	6,0	0,8	10,7	28,0	6,4	2,3
Retail trade	8,6	7,0	8,0	5,1	5,2	7,3	6,8
Services	43,7	45,6	35,5	38,8	33,9	33,1	64,2
Local government and hospital sector	30,8	29,6	43,3	27,4	21,2	32,1	18,0
Sum	100	100	100	100	100	100	100

*Table 20 – Old regional sector weights on investments - The sectors' share of the investments in each region. In per cent.*

	North	Mid-Norway	In-land	North west	South west	South	East
Manufacturing	17,7	6,9	8,2	15,8	11,1	14,2	6,3
Retail trade	4,4	4,8	5,8	5,5	5,7	6,2	6,7
Services	26,6	40,1	29,3	36,9	41,2	32,6	46,8
Local government and hospital sector	51,3	48,3	56,7	41,8	42,0	47,1	40,2
Sum	100	100	100	100	100	100	100