Mini Presentation
NACE 71.2 Technical Testing and Analysis in Norway (SPPI)

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Definition of the service being priced

| NACE Rev. 2		CPA
Group		**Class**
71.2	**Technical testing and analysis**	**71.20.1**
	Composition and purity testing and analysis services	**71.20.11**
	Testing and analysis services of physical properties	**71.20.12**
	Testing and analysis of integrated mechanical and electrical systems	**71.20.13**
	Technical inspection services of road transport vehicles	**71.20.14**
	Other technical testing and analysis services	**71.20.19**

- 71.20.19 is the largest class measured in turnover (60 per cent).
- In the Norwegian CPA the activity of <u>certification</u> has been separated into an own class.

Pricing unit of measure

- Transaction prices of repeated services:
  - Price per hour
  - Price per day
  - Price per certification
  - Price per test/analysis
  - Price per inspection/control
  - Price per calibration
  - Price per classification

- Prices has been collected since the 1st quarter of 2009.

Market conditions – Size of industry

Development in turnover (in 1 000) and number of enterprises and employees in NACE Rev. 2 71.2. 1999 - 2009. Structural Business Statistics.
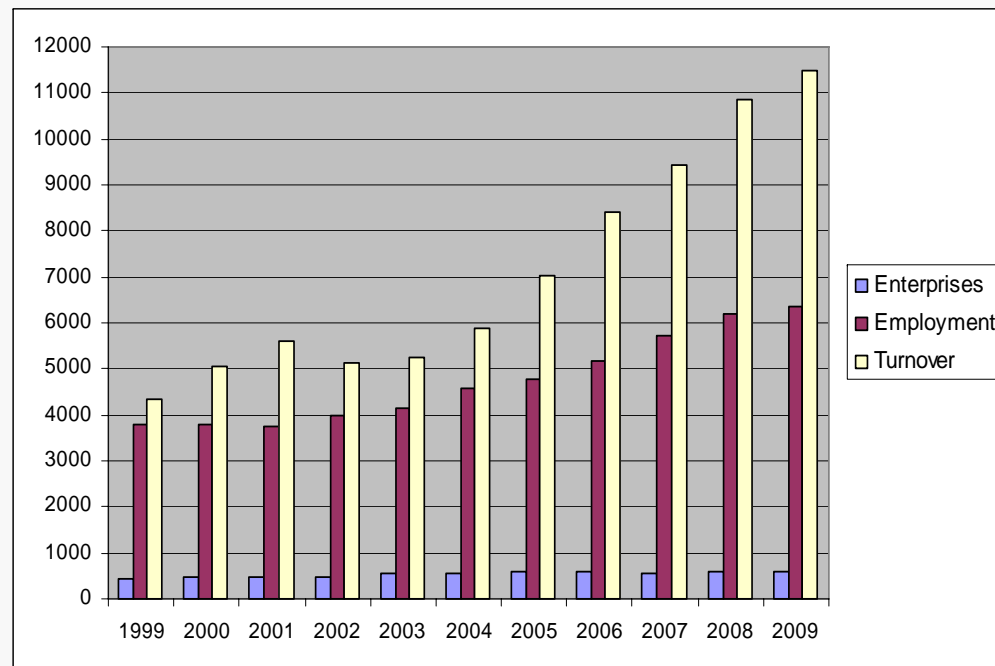
- **Stable growth in turnover since 2003.**
  - Annual growth between 10-20 per cent (2003-2008).
  - 2008-2009: + 5 per cent.

- **Number of enterprises between 500 and 600 units.**
  - Small decrease from 2008 to 2009 (- 4 per cent).

- **Number of employees has increased in accordance with the turnover.**

Market conditions – Size of industry cont.

**Selected variables, divided by employment groups.
NACE Rev.2 71.2. Structural Business Statistics 2009.**

Employment groups	2009		
	Enterprises	Employment	Turnover
0	53,1 %	0,0 %	1,7 %
1-4	27,8 %	4,5 %	3,6 %
5-9	7,5 %	4,7 %	3,0 %
10-19	3,8 %	5,0 %	3,4 %
20-49	4,7 %	13,0 %	9,7 %
50 +	3,1 %	72,9 %	78,6 %
Total	100,0 %	100,0 %	100,0 %

- **The industry is dominated by a few large companies.**
  - **Only 3 per cent of the companies have above 50 employees.**

- **These companies accounts for almost 80 per cent of the turnover.**

- **Above 50 per cent of the enterprises are one-man firms.**
  - **Enterprises that often specialize in niche markets.**

Market conditions – special conditions

- High degree of complexity in this industry – great variety of services being produced.
  - e.g. one company has classification of enormous tankers as their main activity, another one;
  - conducts small sample analysis of soil and seeds.

- In Norway NACE 71.2 are especially related to two other sectors:
  - The oil- and gas sector.
  - Shipping industry.

Classification structure

- CPA was used as a starting point when we made the classification for the SPPI.
  - Based on recommendations from the industry some adjustments were made:
  → broader defined activity fields
  → splitting up the classification for "other technical testing and analysis services" (71.20.90).

- Six activity fields:
  1. Certification of systems
  2. Certification of products/personnel
  3. Test and analysis
  4. Inspections and controls
  5. Measurement- and validation services
  6. Classification

Classification structure cont.

Table 2: Percentual distribution of turnover in NACE Rev. 2 71.2 (SPPI weights vs. CPA).

SPPI - classification	%	CPA - classification	%
Total – Technical testing and analysis	100	Total – Technical testing and analysis	100
1.1 Certification of systems	6,0	2.1 Certification	8,4
1.2 Certification of products/personnel	2,9	2.2 Composition and purity testing and analysis services	9,2
1.3 Testing and analysis	34,0	2.3 Testing and analysis services of physical properties	5,3
1.4 Inspections and controls	23,7	2.4 Testing and analysis services of integrated mechanical and electrical systems services	4,2
1.5 Measuring- and validation services	1,7	2.5 Technical automobile inspection services	0,8
1.6 Classification	31,7	2.6 Other technical testing inspection and analysis services	60,6
		2.7 Other additional products	11,4

Sampling

- Stratified Probability Proportional to size.
  - → Size = number of employees

Table 5: Sample design for SPPI - NACE Rev.2 71.2. 2010.

| Employment groups	Employees	Per cent	Enterprises	Per cent	Turnover	Per cent	Probability of inclusion in the sample	Enterprises in sample	Turnover in sample	Per cent
0	0	0	305	53,0	193 264	1,7	0	0	0	0
1-4	276	4,5	160	27,8	413 332	3,6	0,1	16	41 333	0,4
5-9	292	4,7	43	7,5	340 518	3,0	0,3	13	102 155	0,9
10-19	310	5,0	22	3,8	390 934	3,4	0,7	15	273 654	2,4
20-49	802	13,0	27	4,7	1 111 169	9,7	1	27	1 111 169	9,7
50+	4 512	72,9	18	3,1	9 018 155	78,6	1	18	9 018 155	78,6
Total	6 192	100	575	100	11 467 372	100		89	10 546 466	92,0*

* There is a divergence between the sample coverage mentioned in the report and the sample coverage in table 5. The reason for this is that since we drew the sample in 2010 we have lost some companies. Rotation of the sample and updating of the weights will occur in the first half of 2012.

Pricing method

- Pricing method is *direct use of prices for repeated services.*
- Conclusions from meetings with the industry:
  - High degree of diversity and complexity in the industry → favours rather wide classification of fields of activity.
  - Many services are custom-made for one client → but the companies also have some stable core services that is offered to a broader market.
- The companies report two representative and repeated services within those fields of activity they are involved.
- The services is specified at a highly detailed level, so that we know that we are measuring the same service every quarter.
- The services stated in previous quarter are fixed in the next.

Pricing method cont.

- Price relatives from the companies are calculated by comparing t and t-1 → geometric average (Jevons).

- Weight information (turnover divided into the different fields of activity) are gathered and updated every other year.

- 18 elementary indices → aggregated up to 6 sub indices with an L-type index.

- 6 sub indices aggregated up to one total index: $\widetilde{P}_G^t(b) = \widetilde{P}_G^{t-1}(b)\, P_G^{t-1,t}(b)$
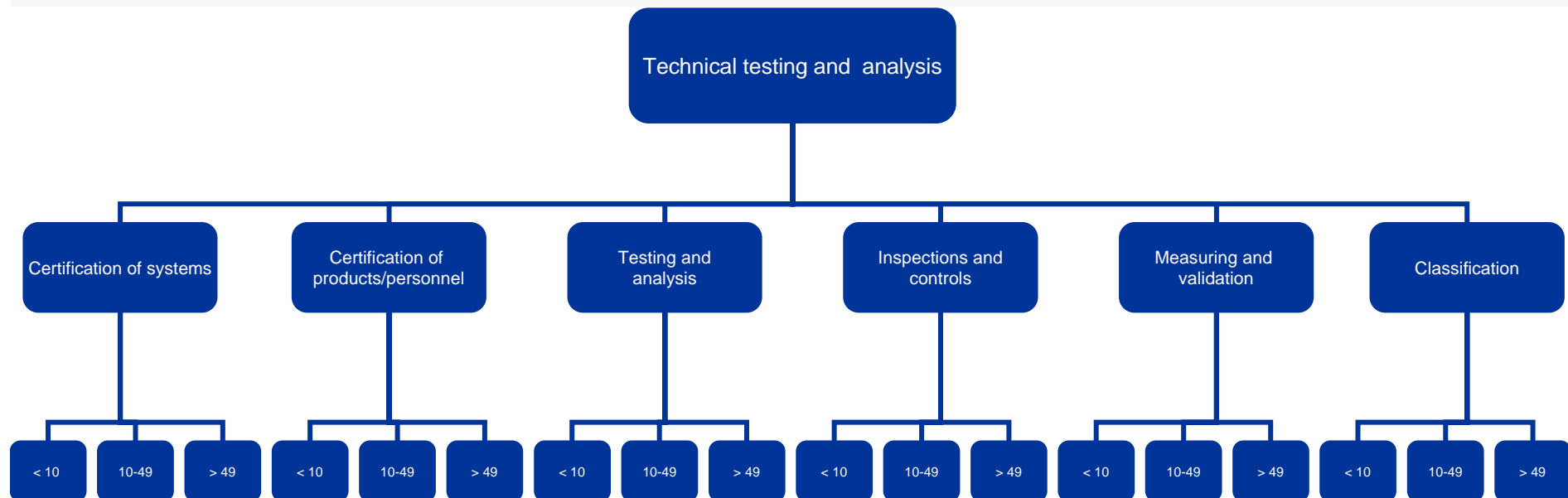
Quality adjustment

- *Direct use of prices for repeated services* requires that the services are described at a detailed level.
    - Companies specify these descriptions themselves, so they easily can identify the very same service the next quarter.

- We have three methods for detecting quality changes:
    1. Every quarter the companies are asked whether the services stated last period still are representative.
        - If yes, they shall give new prices to the same services.
        - If no, the shall replace the services with new representative ones.

    2. Typical length in time for conducting the service.
        - e.g. price change may be affected by a technical improvement that reduces the time of service execution.

    3. Number of years of experience on the personnel that normally conducts the service.
        - e.g. price change may be affected by the degree of competence input in the service (a senior engineer will for instance have a higher hourly rate than an engineer).

Results

2006=100
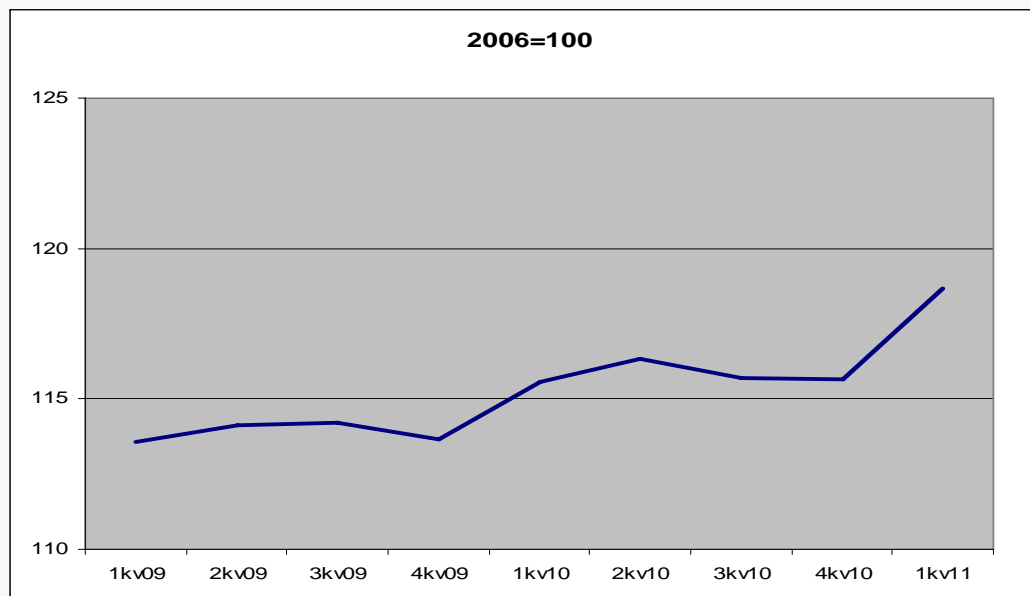
Table 4: SPPI for NACE Rev.2 71.2. 1q.2009 - 1q.2011.

2009				2010				2011
1. quarter	2. quarter	3. quarter	4. quarter	1. quarter	2. quarter	3. quarter	4. quarter	1. quarter
113,6	114,1	114,2	113,7	115,6	116,3	115,7	115,6	118,7
Change from same quarter in the previous year, per cent				1,8	1,9	1,3	1,8	2,7

Questions?