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Turnover and Output for the Software Publishing Sector in Sweden

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1. Definition of service being collected^{1 2}

The statistical classification of NACE 58.2 *Software publishing* in the European Union (NACE Rev. 2) is belonging to division 58 *Publishing activities* within section J *Information and communication*.

In NACE Rev. 2 software publishing is divided into two classes – 58.21 *Publishing of computer games* and 58.29 *Other software publishing*.

In the Swedish National Classification (SNI2007) there is a possibility to divide these classes further into sub-classes. However, in NACE 58.21 and 58.29 no further divisions have been made.

For more information on classification, see chapter 4.

2. Unit of measure being collected

The unit of measure being collected is turnover in local currency, Swedish krona (SEK). This measure of turnover is excluding VAT and other taxes and subsidies.

3. Market conditions and constraints

In 2011, there were 2 363 enterprises performing software publishing activities, with 10 100 employees³, a turnover of 21.1 SEK billion (\approx 2.4 € billion) and value-added of 9.7 SEK billion (\approx 1.1 € billion).

Table 1: Basic data on software publishing 2011 (enterprise level)

Variable	58.21	58.29	Total
No. of enterprises	339	2 024	2 363
No. of employees	1 502	8 627	10 129
Net turnover, SEK million	3 971	17 184	21 155
Value added, SEK million	1 559	8 095	9 653
Total assets, SEK million	3 732	21 746	25 477
Net investments, SEK million	12	338	351

NACE 58.2 is a relatively small group in the Swedish business sector (excluding financial services), contributing to 0.3 percent of total turnover and 0.5 percent of value added.

In section J, NACE 58.2 accounts for 5.6 percent of the turnover and 6.2 percent of value added.

Finally, in division 58, software publishing accounts for 34.5 percent of the turnover and 43.2 percent of value added.

¹ NACE Rev. 2 Statistical classification of economic activities in the European Community

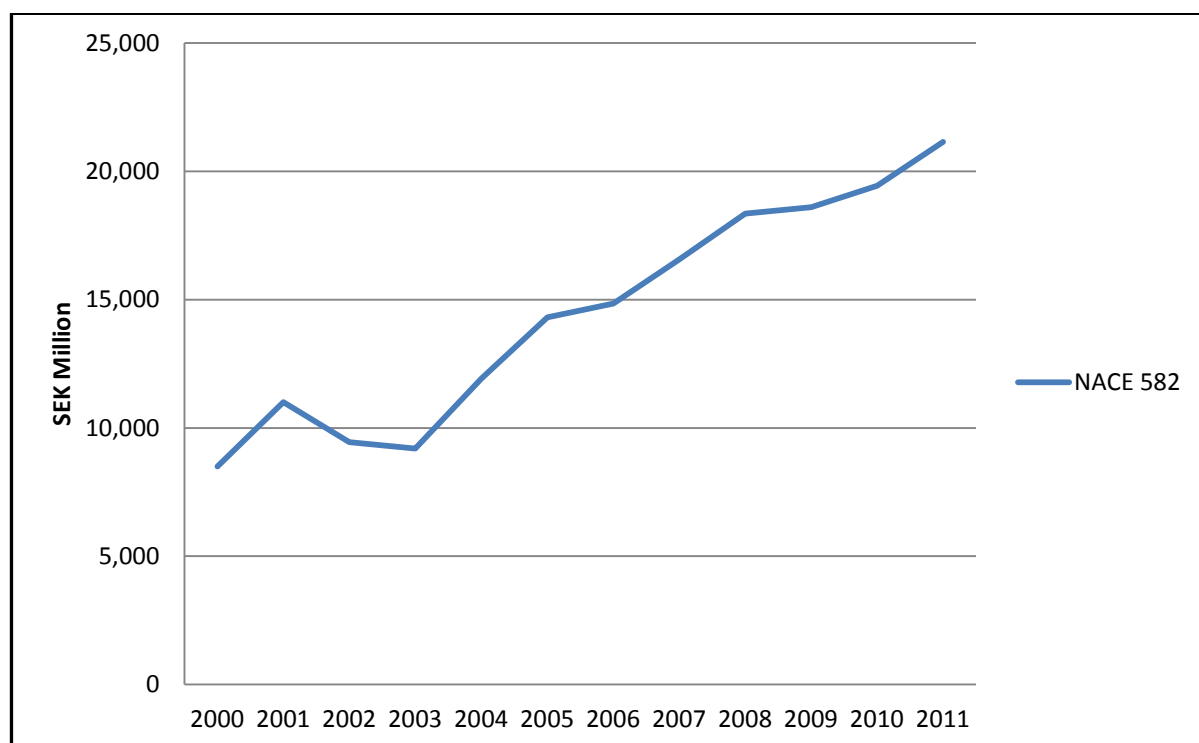
² SNI2007 Swedish Standard Industrial Classification 2007

³ Number of employees in full/time equivalents

Table 2: Basic data on software publishing 2011 (enterprise level)**Size class by no. of employees**

Variable	0-9	10-49	50-249	250+	Total
No. of enterprises	2 130	195	33	5	2 363
No. of employees	2 091	3 742	2 762	1 534	10 129
Net turnover, SEK million	4 372	7 216	6 381	3 187	21 155
Value added, SEK million	1 867	3 064	2 615	2 117	9 653
Total assets, SEK million	9 455	7 217	6 229	2 577	25 477
Net investments, SEK million	80	155	82	35	351

As in most industries, a small number of large enterprises produce large part of turnover and value added as seen in table 2 above. The largest share of turnover and value added is generated by enterprises with 10-49 employees. Figure 1 below shows the development of turnover in SEK million over the last decade on kind-of-activity (KAU) level.

Figure 1: Turnover in software publishing 2000-2011 (KAU), SEK million

Source: SBS 2000-2011, Statistics Sweden. Values for the period 2000-2006 are back-cast.

3.1 Ownership

The service in NACE 582, software publishing, is often produced by foreign controlled enterprises. Even if only 6 percent of the enterprises are foreign controlled, approximately 44 percent of the turnover within the industry is generated by such enterprises. Of the ten largest enterprises in the industry, seven of them are foreign controlled.

3.2 Turnover by product

The industry is strongly linked to NACE 62 *Computer programming, consultancy and related activities* and somewhat linked also to NACE 465 *Wholesale of information and communication equipment*.

Looking at turnover by product, 32 percent of the turnover in NACE 582 is classified as Computer programming, consultancy and related activities (CPA 62) and 6 percent of the turnover is classified as Wholesale of information and communication (CPA 465).

On the other hand, 42 percent of software publishing services (CPA 582) is produced in NACE 62.

One problem is that a lot of enterprises in NACE 582 consider themselves active in programming rather than software publishing.

4. Standard classification structure and product details/levels

4.1 Industrial classification^{4 5 6}

The national industrial classification, *Standard för svensk näringsgrensindelning 2007 (SNI2007)*, is based on NACE Rev. 2 but has an additional hierarchical level, the five-digit level. For the software publishing sector, SNI2007 is equal to the NACE Rev. 2 classification down to four-digit level and is not further divided into subclasses. The complete breakdown of the software publishing sector can be seen in table 3 below:

Table 3: Industrial classification of software publishing

NACE Division	NACE Group	NACE Class	SNI 5-digit level	Name	ISIC Rev. 4
58	58.2	58.21	58.210	Publishing of computer games	5820
		58.29	58.290	Other software publishing	5820

NACE Rev. 2 corresponds to ISIC Rev. 4 down to group level, then software publishing is divided into two classes in NACE Rev. 2.

In line with NACE Rev. 2, the national industrial classification replaced the previous version (SNI2002/NACE Rev. 1.1) starting with reference year 2008. The Swedish Business Register contained both versions for reference years 2007 and 2008 and results were also published in both versions. Starting with reference year 2009 results will only be published in the new classification.

With backcasting, results for both short-term (STS) and structural business statistics (SBS) are available from 2000 in the new classification.

⁴ NACE Rev. 2

⁵ Swedish Standard Industrial Classification 2007 (SNI 2007)

⁶ ISIC Rev. 4

4.2 Product classification^{7 8 9}

The national product classification, *Standard för svensk produktindelning efter näringsgren 2007 (SPIN2007)*, is in most parts equal to the CPA 2008 classification. The code structure is slightly different (seven-digit code in national classification versus six-digit code in CPA) but most products have a one-to-one relationship. This is the case within software publishing, where all 14 products have a one-to-one relationship in SPIN2007 and CPA 2008. Turnover within the SBS survey is however not divided into that many variables/product groups: there is only three codes for the CPA 582. The break-down on products can be seen in table 4 below. For a complete list of SPIN/CPA codes, see annex 1.

The structure of the European CPA classification differs quite a lot from the structure of the international CPC classification. The products within software publishing are not held together in the same way as in CPA and belongs in three different divisions in CPC Version 2; 47, 73 and 84.

Table 4: Classification of products for software publishing

Variable	SPIN 2007	CPA 2008	Name
v2842	58.290.01-09	58.29.11-40	Publishing of software on a physical medium, downloadable software
v2844	58.21	58.21	Publishing services of computer games
v2847	58.290.10	58.29.50	Licensing services for the right to use computer software

Regarding the demands from National Accounts (NA) there is at the moment no plans to divide the CPA into more detailed products.

As with the industrial classification, SPIN2007/CPA 2008 replaced the older version starting with reference year 2008. For NA purposes results for structural business statistics were delivered in both versions for reference years 2007 and 2008.

5. Evaluation of standard vs. definition and market conditions

A lot of enterprises have more than one activity within the sector and NACE 582 is strongly connected with NACE 62 *Computer programming, consultancy and related activities*.

Table 5: Turnover by product and industry 2011, SEK million

Industry	465	582	62	Other	Total
Product					
465	107 362	1 243	23 899	35 926	168 430
582	0	11 373	8 631	420	20 424
62	1 919	6 753	125 237	41 563	175 472
Other	6 759	1 786	5 955	-	-
Total	116 040	21 155	163 722	-	-

⁷ CPA 2008

⁸ Swedish Standard Classification of Products 2007

⁹ CPC Version 2

6. National Accounts Concepts and measurement issues related to GDP measurement¹⁰

NA has previously published results in the old industrial classification (SNI2002/NACE Rev. 1.1) but has now started to use the new classification. In the Swedish NA system, the software publishing sector belonged to classification 72 and 74.50-80 which corresponds to 582 in the new classification.

Since 1997, the main source for annual output calculations has been the SBS, although other sources are used when appropriate. SBS contains detailed information on both income and intermediate consumption. For quarterly GDP, the value is calculated either by extrapolating the value in the NA system using an indicator, using data directly from a source or by using a model. For the software publishing sector the STS is used to extrapolate the value in the NA system.

At the moment, SPPI in Sweden only covers 58.29 and not 58.21. The reason is that 58.21 is considered such a small part of 58.2.

6.1 NACE 582

As mentioned earlier, software publishing are many times integrated with *Computer programming, consultancy and related activities* (NACE 62).

Apart from principal production, i.e. software publishing, the industry's secondary activities, such as computer programming, consultancy and wholesale of software products, are recorded separately. Data on the output of software publishing within the business sector is obtained from the SBS. The industry's intermediate consumption is also provided by the SBS. Balancing and plausibility assessment are performed in the supply and use tables. Value added is obtained residually as the difference between output and intermediate consumption.

7. Turnover data methods and criteria for choosing different output methods

Two EU-regulated surveys collect information on turnover in the business part of the software publishing sector. Short-Term Statistics collect industry-level turnover monthly/quarterly and Structural Business Statistics collect turnover on industry-level as well as product-level annually.

7.1 Short-Term Statistics

Turnover in the service sector is published quarterly in accordance with Council Regulation of Short Term Statistics, (EC) No. 1165/98 and amended by the regulation (EC) No. 1158/2005. The software publishing sector is covered by the regulation as a part of NACE 58 *Publishing activities*. They are also covered by the survey for National Accounts (NA) purposes.

¹⁰ ESA95 GNI Inventory, Sweden, Reference Year 2005, Revision 5, October 2009

The statistical unit as well as the unit of collection is enterprise. Results are only presented as development indices and not as absolute values.

The short-term statistics is a sample survey, with a certain number of large enterprises surveyed monthly, while the remaining enterprises of the sample surveyed quarterly (but with turnover divided into months). The monthly data is used for the service production index. The total number of enterprises surveyed in the service sector is approximately 10 100. The un-weighted response rate is approximately 80 percent while the weighted response rate is approximately 90 percent.

Results are published 35 days after the end of the time period in question. The results are mainly used by the NA in their calculations of private consumption and Gross Domestic Product (GDP). In theory, NA would need the turnover divided into product groups, but due to the response burden only total turnover is collected. This turnover is then divided into product groups with various keys to meet the requirements of short-term NA calculations.

Administrative data is not used as input in the calculations at present. Work is however in progress with the use of VAT data, mainly to reduce response burden.

7.2 Structural Business Statistics

Structural Business Statistics is a survey carried out annually in accordance with “Regulation (EC) No. 295/2008 [...] concerning structural business statistics” (the regulation consists of a number of annexes and the description below is valid for annexes I-IV and VIII, or NACE 05-82 (excluding 64-66) and 95). Furthermore, detailed results (much more detailed than demanded in the above mentioned regulation) of the survey are delivered to National Accounts. In its current format, the SBS has been produced since 2003.

Information is collected on enterprise level or in some cases KAU level. The statistical unit for NA purposes is KAU. Results are published on enterprise (institutional) level as well as KAU (functional) level and for some variables local KAU (regional) level. The regional information is produced via a model-based approach.

The survey is based on administrative data, more precisely on income and balance sheet statements from the Swedish Tax Agency (Skatteverket). Three separate sample surveys (specification of income sheet, specification of investments and specification of shares) are carried out to provide more detailed information. In addition to this, the 600 largest enterprises in the business sector are surveyed separately.

The administrative data is, at least in theory, available for the entire population of around 1 000 000 enterprises. Non-response in administrative data (15-20 percent un-weighted, 3 percent weighted) are dealt with through mean value imputations based on industry and size class. This material is used for what is called the common variables within the income and balance sheet statements, such as turnover, other operating incomes, depreciation costs, personnel costs and total assets. Tax material was used for 2 363 enterprises in the

software publishing sector in 2011. Non-response was 20 percent un-weighted and 4 percent weighted.

The 600 largest enterprises in the business sector are surveyed independently of the tax data. This is due to their importance to the business sector (roughly one-third of value added) and their often complex organisations. These enterprises are asked to complete a questionnaire consisting of a detailed income statement (including turnover by product but also for example more detailed cost statements), a balance sheet statement, a specification of investments and a specification of shares. The response rate for these enterprises have been 100 percent in recent years. Only two enterprises within the software publishing sector was surveyed this way 2011.

The specification of income statement is used to get more detailed information, e.g. turnover by product, for the remaining enterprises. A sample of some 17 000 enterprises is used for this part of the survey, allocated in 300 strata based on the demands of NA. 231 enterprises in one stratum were sampled in the software publishing sector 2011. The sample method used is π ps, i.e. probability proportional to size. The response in this survey is usually around 80-85 percent un-weighted and 88-90 percent weighted. The response rate in the software publishing sector was 87 percent un-weighted and 92 percent weighted for reference year 2011.

Besides being an important input in the NA calculations, the collection of turnover by product is also an important input in the Business Register. The detailed information makes it possible to detect any change in activity within the enterprises, and thus keep the Business Register as updated and correct as possible.

The surveys regarding specification of investments and specification of shares are similar to the specification of the income statement. They are however less detailed and thus demand lower sample sizes.

Results are compared with STS and other short-term indicators for consistency. Preliminary results are transmitted to Eurostat 10 months and definitive results 18 months after the end of the reference period. Definitive detailed results are transmitted to NA 15 months after the end of the reference period. Preliminary and definitive results are also published in on-line databases, 12 months and 17 months after the end of the reference period respectively.

8. Evaluation of comparability of turnover data with price index practices¹¹

The product groups within the software publishing sector covered by service producer price indices at present are group 582, class 5829. Class 5821 is not surveyed at the moment. There are no further breakdown within class 5829.

The measurement of prices in this industry tends to be very difficult. The main problem is to get comparable prices over time. Producer price indices are calculated according to a Laspeyres formula.

¹¹ Tjänsteprisindex 2011

9. Summary

The software publishing sector is a relatively small part of the Swedish economy, contributing only 0.3 percent of total turnover and 0.5 percent of total value added in the business sector. It is a diversified industry where a large share of the turnover belongs to products outside NACE 582. A large part of the production within the sector is generated by foreign controlled enterprises. The total output of above mentioned industries has increased steadily over the last ten years.

STS are used for quarterly GDP calculations while SBS are used for the more detailed annual accounts.

Regarding turnover by product, CPA 582 are divided into three variables at present. No further breakdown is planned at present.

Annex 1

Variable	SPIN 2007	CPA 2008	Name
v2844	58.210.01	58.21.10	Computer games, packaged
	58.210.02	58.21.20	Computer games downloads
	58.210.03	58.21.30	On-line games
	58.210.04	58.21.40	Licensing services for the right to use computer games
v2842	58.290.01	58.29.11	Operating systems, packaged
	58.290.02	58.29.12	Network software, packaged
	58.290.03	58.29.13	Database management software, packaged
	58.290.04	58.29.14	Development tools and programming languages software, packaged
	58.290.05	58.29.21	General business productivity and home use applications, packaged
	58.290.06	58.29.29	Other application software, packaged
	58.290.07	58.29.31	System software downloads
	58.290.08	58.29.32	Application software downloads
	58.290.09	58.29.40	On-line software
	58.290.10	58.29.50	Licensing services for the right to use computer software