



31st Voorburg Group Meeting

Croatia

September, 2016

Mini-presentation for SPPI on:

**CPA 59 Motion picture, video and television
programme production, sound recording and
music publishing services**

Authors: Rohan Draper (Rohan.Draper@scb.se)
Angelica Svensson Eshraghi (Angelica.SvenssonEshraghi@scb.se)
Maria Bäckström (Maria.Backstrom@scb.se)

Contents

| | |
|---|--------|
| 1. Definition of the survey being priced | - 1 - |
| 2. Unit of measure to be priced | - 1 - |
| 3. Market conditions and constraints | - 2 - |
| 4. Standard classification structure and product details | - 8 - |
| 5. Evaluation of standard vs. definition and market conditions | - 8 - |
| 6. National accounts concepts and measurement issues related to GDP | - 9 - |
| 7. Pricing methods and criteria for choosing various pricing methods | - 10 - |
| 8. Evaluation of comparability of price indexes with turnover/output data | - 14 - |
| 9. Summary | - 15 - |

1. Definition of the survey being priced

In the Statistical Classification of Products by Activity (CPA 2008), 59 Motion picture, video and television programme production, sound recording and music publishing services is classified as a division within Section J – Information and Communication Services.

CPA 59 is comprised of two major groups: 59.1 - Motion picture, video and television programme services; and 59.2 - Sound recording and music publishing services.

It should be noted that Sweden produces product based producer price indices. Indices are developed and produced largely to the 5-digit category level utilising SPIN 2007 classifications (Swedish Standard Classification of Products by Activity 2007 / Svensk Produktindelning efter Näringsgren 2007). NACE (NACE rev.2) will be utilised when industry based statistics have been utilised for analysis purposes rather than product based statistics.

Price indices for CPA 59 are currently under development in Sweden. The results presented in this paper are preliminary findings based on meetings with enterprises and trade organisations and from a pilot study.

2. Unit of measure to be priced

59.110 Motion picture, video and television programme production services include production of theatrical and non-theatrical pictures whether on film, DVD or video tape. Also included is production of television programs. 59.110 contains services for different types of production such as the production of motion pictures, television series and animated films, as well as the production of entertainment programs, sports and commercials. The group also includes the sale of advertising space and films, both in downloadable format and in physical form.

59.120 Motion picture, video and television programme post-production services include post-production activities such as editing, titling, subtitling, credits, closed captioning, computer-produced graphics, animation and special effects.

59.130 Motion picture, video and television programme distribution services include distribution of film, video tapes, DVDs and similar production to movie theatres, broadcasters and TV stations, examples of this can be recorded movie, rent for movie theatres and movie rights.

59.140 Motion picture projection services include activities of motion picture or video tape projection in cinemas, in the open air or in other projection facilities.

59.200 Sound recording and music publishing services include music downloads, copyright services, activities of sound-recording studios and production of taped radio programming. It is worth noting that in the Swedish classification activities like streaming are not included. That is, for example enterprises like: Google Play; Spotify; Apple Music and Pandora.

For further discussion of unit of measure, see section 7.

3. Market conditions and constraints

3.1 Turnover Data

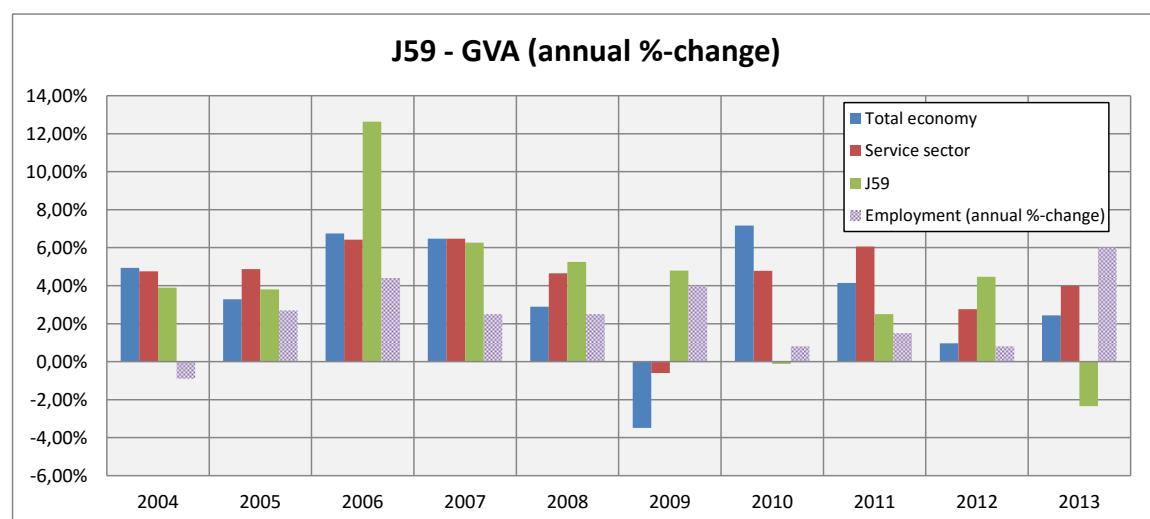
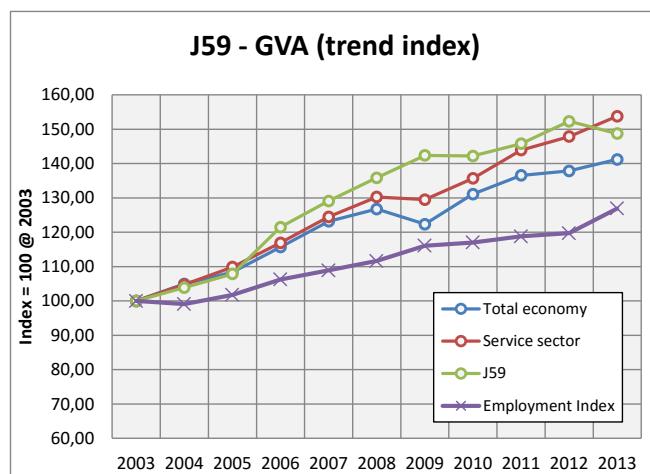
The table below shows turnover data from 2014 for each detailed group (5-digit) in CPA 59. The detailed groups codes are presented as they are classified in Sweden utilising SPIN 2007. The dominant SPINs within CPA 59 are 59.110 (50.5% share of turnover) and 59.200 (32.3% share of turnover). CPA 59 represents 5% of total turnover for Section J.

| CPA 59 - Turnover Data | | | | |
|------------------------|---|----------------|--------------|------------------------|
| SPIN 2007 | Description | % of Section J | % of NACE 59 | Turnover (SEK million) |
| 59.110 | Motion picture, video and television programme production services (<i>Production services</i>) | 2.5% | 50.5% | 10481 Mkr |
| 59.120 | Motion picture, video and television programme post-production services (<i>Post-production services</i>) | 0.2% | 3.5% | 732 Mkr |
| 59.130 | Motion picture, video and television programme distribution services (<i>Distribution services</i>) | 0.3% | 5.6% | 1171 Mkr |
| 59.140 | Motion picture projection services | 0.4% | 8.1% | 1679 Mkr |
| 59.200 | Sound recording and music publishing services | 1.6% | 32.3% | 6703 Mkr |
| Total | | 5.0% | 100.0% | 20766 Mkr |

3.2 Gross Value Added (GVA)

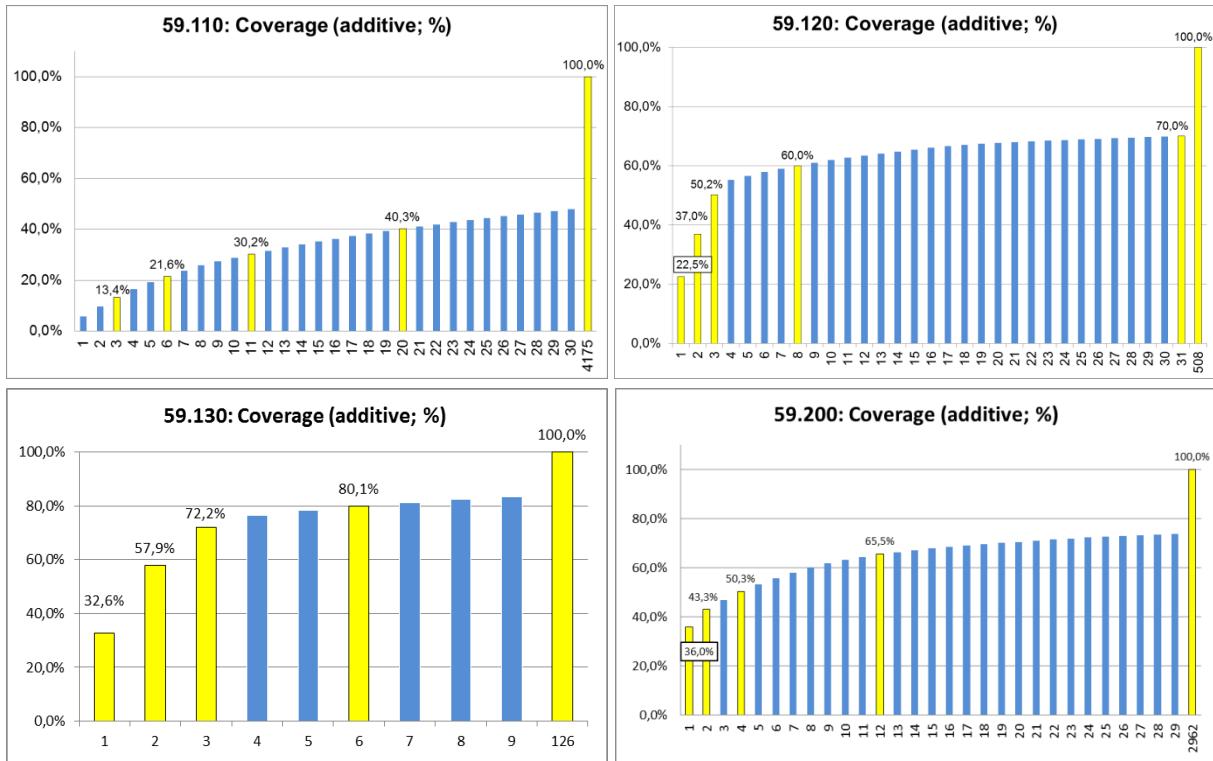
NACE 59 exhibits a positive trend over the period 2003-2013 with particular strength prior to and across the global financial crisis - Dec.2007 to Jun.2009. NACE 59 outperformed both the total economy and service sector across this period.

Employment growth within the division has been equally positive. The division shows the signs of an expanding growth phase type industry. These signs are also present in the dispersion of the enterprise population.



3.3 Population and Coverage

The following graphs give a visual overview of additive coverage across the population per 5-digit detailed group. Enterprises are sorted by size based on their turnover.



59.110 Motion picture, video and television programme production services exhibits high dispersion with only one enterprise having a market share above 5%.

59.120 Motion picture, video and television programme post-production services is highly concentrated with the three largest enterprises representing over 50% of turnover.

59.130 Motion picture, video and television programme distribution services is highly concentrated with the three largest businesses representing over 70% of turnover.

59.140 Motion picture projection services is highly concentrated. Graph not shown due to data sensitivity.

59.200 Sound recording and music publishing services is also highly concentrated with the top four enterprises representing over 50% of turnover.

Sweden's usual PPI sampling practise is the utilisation of a probability proportionate to size methodology with larger enterprises selected as "completely enumerated" (units that aren't likely to be rotated out). A pilot study was conducted in 2015/16 which included personal visits with larger businesses within the population. In general, businesses were open to providing data but needed to be educated about the statistics bureau and namely price statistics.

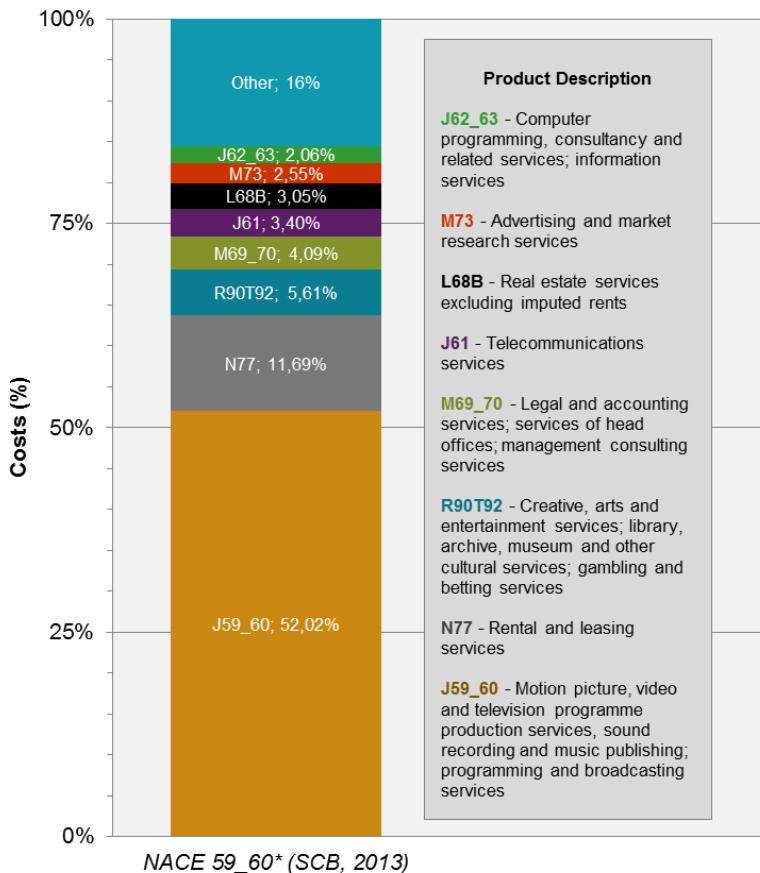
Due to the high concentration and the importance of capturing representative specifications our aim is to at least in the short to medium term continue to meet with large businesses for enrolment and sample maintenance purposes. For simpler types of product offerings it should be noted that our

usual forms based enrolment procedures were also effective and captured detailed and representative specifications.

3.4 Cost Structure

Cost structure data is derived from S-U Tables (2013). Data is published as NACE 59 and NACE 60 combined, however, cost side pricing pressures have been determined to come from relatively the same sources.

NACE 59 (incl. 60) - Cost Structure



*59 and 60 are published together within Swedish S-U Tables

The largest costs come from NACE 59 and this conforms to real world cross supply/utilisation of services. Data availability to the 4-digit level would paint an interesting picture of intra-division transaction flows. The next three highest costs come from: *rental and leasing services* (equipment and location fees); *creative arts and cultural services* (essentially covering costs of artists; set designers; costume designers; etc.); *legal, accounting, management* (largely relates to general management of finances, and secondly fairly intensive supplier and purchaser contract management – this is an activity that is often completed by in-house professionals).

3.5 Market Trends

Research has included discussions with associations and organisations; a sample of enterprises; and readings from annual reports and industry publications. The following main items have been identified.

Technology – quality and productivity. This division can be described as highly technologically driven. Modern technological improvements should not necessarily be lumped into the productivity basket. Important to note is that in some elements of production and post-production, technology

does not impact efficiency but rather the quality of the final distributed product. That is, it is not the number of worked hours within film production and/or sound recording that is impacted but rather the final quality of the purchased product by the consumer.

Low entry barriers and high competition. Where large numbers of small-to-medium sized companies are present, with similar market shares, this is an indicator of low entry barriers and high competition. The fuel for this intensity of activity within CPA 59 is driven by the aforementioned technological improvements. Advanced technology has become cheaper and more portable making it much more accessible to smaller sized operations.

Distribution and consumption. The “rise of the digital age” has also opened up new methods of distribution and consumption. Television series, film and music is now readily accessible and on demand across a number of alternate platforms than linear television (traditional scheduled television). Consumers have a much greater opportunity to substitute away from traditional modes of consumption. For example, consumers utilising tablets and phones to consume television series, film and music via providers such as iTunes and Netflix. This increased accessibility applies pressure on local traditional producers whom now increasingly have to compete with international enterprises across multiple consumption platforms.

An enterprise from the pilot study had the following to say about market trends. A view point echoed by a number of respondents and throughout the research:

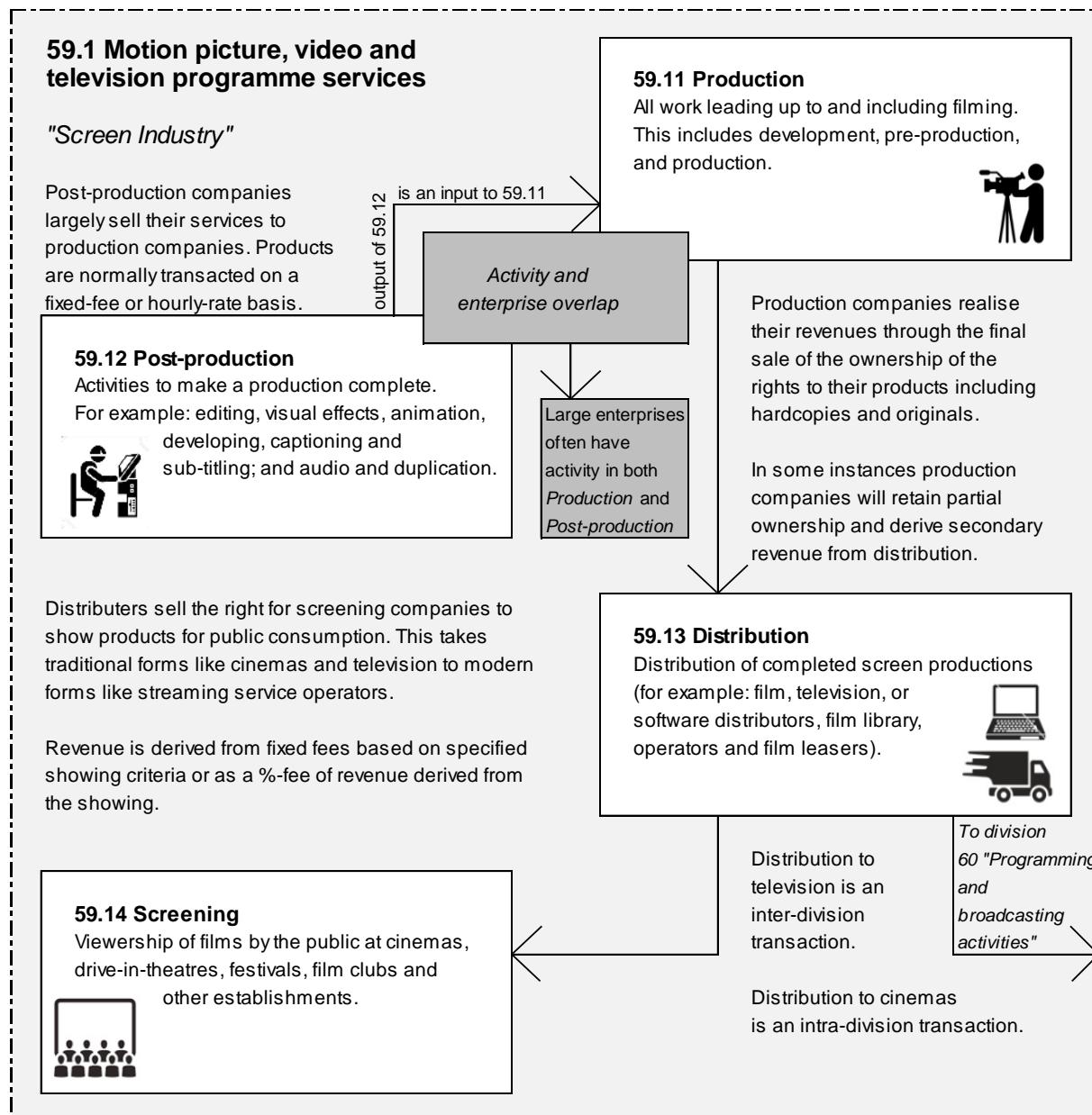
“prices of television production have decreased even though we usually do an indexation of productions when reorders are made. The reason is that our customers are few and we have an over establishment of production companies, while for some years the TV-channels have ordered less domestic production in favour of foreign productions. The production companies [due to increased competition] therefore sell new productions with lower margins than before. In other words, while we have received the same or slightly higher prices for a production that has passed one or more seasons with good viewing figures, it has been difficult to sell new ideas with the same margin as the older production.”

Respondent, CPA 59 Pilot Study, 2016 (SCB).

In other words, the bargaining power lies with the purchasers rather than the suppliers. Tested and proven products are retaining higher margins, however, newer products are facing a margin squeeze due to pressure from foreign suppliers.

3.6 How does the motion picture, video and TV-programme industry work in Sweden?

The following diagram presents a general overview of the main activities and transactional flows present within 59.1 Motion picture, video and television programme services.



3.7 How does the music industry work in Sweden?

The main players in the music business, relevant from a PPI point of view, are the music publishing companies, record label companies, and recording studios. A brief overview of their mutual relations will follow to clarify the flow of services.

Music publishing companies work together with songwriters/composers and receive a share of the songwriter's royalties when their songs are played on the radio and elsewhere. The music publishing company and the songwriter have a publishing contract that states how much of the royalties each party will receive. As an example, one form of agreement model is that the music publishing company pays all the upfront costs and subsequently receives 100% of revenues until their costs have been covered. Post this "cost recuperation" each party then receives an agreed upon share of sales – "royalties". Publishers should not be confused with distributors, that is, in the music industry essentially the record label companies.

Record label companies work together with artists (who may also be the songwriter/composer) and organise and facilitate activities that enable artists to create and later distribute their works. For example: coordination of production and post-production; organisation of publishing deals; distribution; marketing; and execution of licensing agreements.

Recording studios have various types of clients. They can record for an artist on a record label; they can record music for private persons; or even record jingles for advertising businesses. Within the population of enterprises recording studios are represented by few large businesses and many small businesses.

Other main players of note that deserve a mention are STIM and SAMI. STIM (Swedish Performing Rights Agency) is a non-profit organisation consisting of composers and their music publishers. STIM licenses, gives permission, and collects the financial remuneration and then distributes and pays to the copyright owner(s): authors and publishers. SAMI (Swedish Artists' and Musicians' Interest Organization) is also a non-profit organization that collects copyright payments for artists and musicians that ensures compensation when their music is played in public. Corresponding organisations in other countries monitor economic rights in their countries. Information and remuneration are sent to STIM/SAMI for subsequent distribution to its members. By the same token, STIM/SAMI is tasked by organisations in other countries and other rights owners to represent foreign music that is performed in Sweden.¹

¹ Information sourced from the respective STIM and SAMI organisations via personal interview and their publications.

4. Standard classification structure and product details

The Swedish version of CPA 2008, called SPIN 2007, conforms to CPA to the lowest level. However, the 7-digit level is generally not used at Statistics Sweden beyond as a reference. The 5-digit level is usually the lowest level used in economic statistics in Sweden. SPIN 2-digit to SPIN 4-digit level of classification is comparable to CPA. CPA has been utilised within the report for the convenience of international understanding.

| CPA Section | CPA Division | CPA Group | CPA Class | SPIN 5-digit | Name |
|----------------|-----------------|--------------|--------------|-----------------|---|
| J | 59 | 59.1 | 59.11 | 59.110 | Production services |
| | | | 59.12 | 59.120 | Post-production services |
| | | | 59.13 | 59.130 | Distribution services |
| | | | 59.14 | 59.140 | Motion picture projection services |
| | 59.2 | 59.20 | 59.200 | | Sound recording and music publishing services |

5. Evaluation of standard vs. definition and market conditions

A review of supply from NACE 59 shows limited secondary production. This indicates a very low likelihood that enterprises can enact pricing pressure through leverage from secondary activities.

| Supply from NACE 59 (incl. 60) | | | |
|--------------------------------|---|-------------------------|-------------------|
| Product CPA | Product Description | Supply (SEK million) | % of Total supply |
| Primary Activity | | | |
| J59_60** | Motion picture, video and television programme production... | 42942 | 96,31% |
| Secondary Activity | | | |
| M69_70 | Legal and accounting services; services of head offices... | 851 | 1,91% |
| G45 | Wholesale and retail trade and repair services of motor vehicles... | 331 | 0,74% |
| L68B | Real estate services excluding imputed rents | 169 | 0,38% |
| M73 | Advertising and market research services | 120 | 0,27% |
| J62_63 | Computer programming, consultancy and related services... | 77 | 0,17% |
| N77 | Rental and leasing services | 54 | 0,12% |
| M71 | Architectural and engineering services; technical testing and... | 24 | 0,05% |
| N78 | Employment services | 9 | 0,02% |
| N80_T82 | Security and investigation services; services to buildings... | 6 | 0,01% |
| C18 | Printing and recording services | 3 | 0,01% |
| Total | | 44586 | 100,00% |

*data is derived from 2013 S-U Tables

**CPA 59 and 60 are published together within Swedish S-U Tables

Supply of NACE 59 is also largely within the division (ca. 98%). Product based price indices and industry based deflators will therefore have relatively the same inflationary pattern.

| Supply of NACE 59 (incl. 60) | | | |
|-------------------------------------|--|---------------------------------|--------------------------|
| Product CPA | Product Description | Supply (SEK million) | % of Total supply |
| Primary Activity | | | |
| J59_60** | Motion picture, video and television programme production... | 42942 | 97,76% |
| Secondary Activity | | | |
| G46 | Wholesale trade, except of motor vehicles and motorcycles | 738 | 1,68% |
| R90T92 | Creative, arts and entertainment activities; libraries, archives... | 213 | 0,48% |
| J62_63 | Computer programming, consultancy and related activities... | 22 | 0,05% |
| M74_75 | Other professional, scientific and technical activities; veterinary... | 11 | 0,03% |
| | Total | 43926 | 100,00% |

*data is derived from 2013 S-U Tables

**CPA 59 and 60 are published together within Swedish S-U Tables

The pilot study conducted in 2015/16 indicated that primary activities have been largely classified to the correct classifications. Responses from the pilot study also indicated that current classification descriptions match and cover actual activities occurring within the division and generate valid specifications for price measurement. A review of product and industry classifications concluded that there were some minor wording differences as well as activities.

The following activities are explicitly identified in SNI and not in SPIN; hiring oneself out as a studio technician or cameraman to TV production (59.110), film library (59.120) and the acquisition of distribution rights (59.130). Included in SPIN and not in SNI is sale of advertising space (59.110).

6. National accounts concepts and measurement issues related to GDP

Development of CPA 59 is currently a 2015/16 ongoing project. National Accounts flagged this as an important division for development with a need for more conceptually correct deflators. Currently deflation is completed using proxy price indices.

| Deflators | | |
|------------------|--|---|
| SPIN 2007 | Description | Deflator |
| 59.1 | Motion picture, video and television programme production activities | WPI (wage index) |
| 59.2 | Sound recording and music publishing activities | CPI - Audio-visual, photographic and information processing equipment |

Current use of WPI and CPI proxy indices will be phased out once CPA 59 indices are officially implemented into the suite of PPIs.

Since the reference year 2008 National Accounts publish results according to the new industrial classification (SNI2007/NACE Rev. 2). Price Statistics in Sweden are produced as product based indices utilising SPIN 2007. There is general concordance between SNI 2007 and SPIN 2007. Price statistics are delivered to a number of internal users who either use them directly (as product deflators) or further transform them to create industry deflators.

Since 1997, the main source for annual output calculations for National Accounts has been the Structural Business Survey (SBS), although other sources are used when appropriate. This aligns to similar data sourcing practises in the development and production of price statistics.

7. Pricing methods and criteria for choosing various pricing methods

The follow pricing method recommendations are based on ongoing research. A final implementation paper will be completed in 2016. This will be followed by an experimental index throughout 2017. Findings from the experimental index will provide information as to the viability of these recommendations in practice.

59.110 Motion picture, video and television programme production services

The most accessible transaction point to follow is upon the sale of ownership of the rights to a finished production. Such productions are either large non-recurring one-off products (NRPs) like feature films or smaller recurring products like TV-series.

Non-recurring (one-off) productions - Overview.

- The price of a production (and therefore price change) at this level of transaction includes inflation coming from both activities of 59.110 and 59.120.
- Products are non-recurring and essentially "one-off". Conventional repeated services methods do not work as a pricing method.
- Film production companies (sellers) may not sell regular products. That is, a production company is setup for a one-off production and/or productions that are years apart. Therefore repeatable prices of the same quality product are not an option.
- Distributors (buyers), however, regularly purchase ownership of film rights. Buyers have a criteria which they utilise to value purchases.
- The pilot study identified the following price determining characteristics from the buy-side:
 - i. Number of distribution rights (if the distribution company can purchase the rights to just one platform or many platforms, e.g. Cinema, DVD and Blu-ray, etc.)
 - ii. Level of royalties (if the distribution company retains part ownership of the rights)
 - iii. Type of movie (art-house, documentary, sequel)
 - iv. Expected demand at the cinema (ticket sales)

Non-recurring (one-off) productions – Recommendation.

- Firstly, as distributors have a steady volume of transactions that don't exist on the producers' side the recommendation is to collect pricing data from the buy-side (in basic prices). This could be in the form of direct use of prices for repeated services or model pricing based on the buyer-side price determining characteristics.
- Secondly, the periodical price movement is reduced by the periodical price movement from 59.120 to isolate the pure price movement for 59.110;NRP. The exact method of determining the weights for 59.110 and 59.120 is yet to be determined.

$$\Delta Index_{59.110;NRP} = \frac{\Delta Index_{59.110|59.120;NRP} - (\Delta Index_{59.120} \times Weight_{59.120})}{Weight_{59.110}}$$

Recurring productions – Overview.

- The price is based on the production cost and a supplement charge. An example of this is a television series or entertainment show that has recurring episodes (daily, weekly, monthly, etc.) and ideally multiple seasons (for price index stability). The transaction is generally between a production company and a TV-channel (not through a distributor).

Recurring productions – Recommendation.

- *Direct use of prices for repeated services.* Viable for simpler productions with standardised inclusions.
- *Contractual agreements* are also an option for production companies that have successful long term repeating series with similar and simple formats. Ideally a number of contracts with a good spread of renewal dates should be priced. Enterprises have indicated that contract renewal can be based on indexation which may lead to a simplification of the pricing method.
- *Component pricing* is reserved for those businesses that have more complex transactions or where *direct use* and/or *contractual agreements* are not available or meaningful. This method gives the pricing analyst the potential to capture inflationary pressures for the entire product line if inflationary patterns within individual productions are not representative of the whole.
- *Model pricing* should be used only as a last resort and if possible based on an actual production to begin with. The usual necessary steps will need to be taken to ensure that the hypothetical model remains up-to-date with the enterprises contemporary product offerings to ensure a representative index.

Due to the complexity of this division it should be expected that personal visits will be required to ensure the building of representative and comparable specifications, however, some success was achieved via the pilot study utilising form and telephone contact. If post-production is included then, as in NRP calculations, 59.120 can be utilised to remove out-of-scope price movements.

An example specification identified in the pilot study is as follows (real show names were utilised for the actual specifications to lock in the underlying quality, however, due to confidentiality false names are utilised in the example):

Specification example (1): Production of "Reality Show ABC", price in SEK per episode.

Specification example (2): Production of "Home Makeover XYZ", price in SEK per episode.

Challenges.

- Reliant on available index for 59.120
- Resource intensive as largely personal visits required

59.120 Motion picture, video and television programme post-production services

Post-production enterprises provide services such as editing, titling, subtitling, computer-produced graphics, animation and special effects. Services are provided on a fixed fee service and/or are billed out at an hourly rate. Pricing methods recommended are price per service and/or hourly rates for a clearly specified product offering. The following are examples of specifications identified via the pilot study:

Specification example (1): Colour grading of film; feature film; operator and studio incl.; one hour.

Specification example (2): Editing of TV reality shows; operator and pc equipment with editing software; one hour.

Specification example (3): Sound editing; film/TV based commercial; operator and studio; one hour.

59.130 Motion picture, video and television programme distribution services

Distribution enterprises' main activity is the purchase of distribution rights to TV programs and films which they later sell usage rights. Usage rights are sold through various channels: DVD; EST (electronic sell-through); Blu-ray; TV and cinema. For physical formats and EST a fixed fee transaction occurs. For cinemas they can lease the film (with particular lease terms) for a fixed fee or they can utilise a revenue-sharing model taking a percentage of the cinema's ticket sales. The research has indicated the percentage fee model as the most used in Sweden.

Sale of physical and/or digital products. Although a straight forward comparison of like-with-like (per unit price), further research will be conducted to identify all price determining factors. The following specification is an example obtained via forms based collection from the pilot study:

Specification example (1): New release; Blu-ray; physically sold; average price; reference period sales.

Cinemas – Revenue-sharing method (RSM). The distributor and cinema enter a contractual leasing agreement regarding the percentage of ticket sales that the distributor will receive from the sales of a particular film product. Respondent advice was that the cinema themselves set the ticket prices. The suggested methodology is to utilise the percentage fee approach where the average percentage fee is collected from the distributor and applied to the index for 59.140. The follow formula shows how this will work in practice.

$$\Delta \text{Index}_{59.130;\text{cinemas_PSM}} = \Delta\% \text{-share of ticket sales} \times \Delta \text{Index}_{59.140}$$

TV – [under development] – preliminary research indicates a fixed fee transaction type based on a defined contract.

59.140 Motion picture projection services

Revenue is based on the sale of tickets to consumers for the screening of a film. Due to the high percentage of business-to-household transactions and their representativeness of business-to-all transactions the recommendation is to utilise a representative CPI. The CPI should be used ex-tax, that is, in basic prices.

59.200 Sound recording and music publishing services

Sound recording and music publishing includes the activities of production of original master recordings, such as tapes, CDs and distributing sound recordings. Is also includes music downloads, copyright services and taped radio programming (this includes public radio). Activities within 59.2 essentially have the same break-up as activities as in 59.1 although this is not explicitly stated by the classification. Recommendations for 59.200 are therefore presented by the main segment of activity as noted in section 3.7.

Music Publishing Companies generate their revenue based on earnings from royalties connected to full or part ownership to rights to music. In Sweden the vast majority of music publishing enterprises are registered with STIM. STIM is a non-for-profit monitoring agency that ensures that use of copyrighted music is utilised according to the Swedish Copyright Act. In their roll they provide a cost-free service of collecting payments for the use of music which they then distribute to the publishers (and authors) that own the rights to the music.

The license fees that STIM collects are therefore directly comparable to the revenue that the music publishing companies generate. It is therefore possible, in Sweden, to centrally collect licensing prices from STIM to represent this segment.

Positive contact has already been made with this agency and the following are some example specifications that we consider practical to follow:

Specification example (1): License “music in sales area”; Annual fee; opening days > 312, square meters area 501-600 sq. fixed annual fee.

Specification example (2): License “live music”; free entrance; price per person

Specification example (3): License “music in exercise class”; number of participants 26-75; price per class.

Record Labels Companies via their “agreements” with their artists generate income through their contractual rights to a proportion of the artist’s revenue. Like STIM there is also a non-for-profit organisation that looks after the collection of monies owed to artists due to the playing of songs that they have collaborated on. The organisation for artists is SAMI (Swedish Artists’ and Musicians’ Interest Organization). The license fees that SAMI collects are therefore directly comparable to the revenue that the record label companies generate (as their revenues are connected to the artists’ revenues). Again, central collect of prices is therefore possible for this segment.

Recording Studios – Recommendation is to use *direct use of prices for repeated services*. Services are time based where the purchaser pays an hourly rate. The following specification provided by a pilot study respondent should ideally include more information about the equipment being offered as part of the one hour hiring of the studio.

Specification example (1): Studio time; one hour.

Public Radio – Government production of radio has a significant contribution to overall output of 59.200. Swedish public radio is financed by a nominal public fee payable by all Swedish residents who own a television. This “fee” goes towards the financing of both public television and radio. The collection of this fee is essentially a blanket “tax” and is paid by the majority of the Swedish population. The service can for all purposes be considered non-market. Two methods for public/non-market services are considered viable for use in Sweden for public radio. These methods were discussed by the Australian Bureau of Statistics paper on “Measuring changes in output prices of the television broadcasting industry – the challenges” (2013).

“The first method is based on the input cost factors, referred to as the input cost factor method, which involves breaking down broadcasting activities into a set of standard broadcasting programs, e.g. news, current affairs and drama. These programs are assumed to be fixed over re-pricing periods. For each program, the total cost is broken down to number of cost factors, including labour cost, various resources, and intermediate inputs. For each factor, a price index is compiled from sample data or where possible existing price indexes may be used as a proxy. For example, the price index for the costs on staff may be taken from Wage Price Indexes (WPIs). The price index for the program is a weighted average of all cost factors.

A limitation of the input cost factor method is that the price determined based on input costs does not necessarily reflect market prices. A second limitation is that the method does not capture changes in productivity in the broadcasting activities.

The second method is to use costs per unit of outputs, i.e. the unit cost method. This method has recently been discussed for measuring nonmarket outputs of health and education (e.g. Diewert 2008, Shreyer 2012). This method requires some meaningful quantity of outputs and in the case of TV broadcasting, one may use quantities such as number of hours of programs broadcast in a particular category. Unit cost for the category is calculated as total costs of broadcasting programs in the category divided by total hours.

The weighted average of unit costs for all categories is used as a proxy to the average output price.

The unit cost method is generally regarded as more robust than the input cost factor method - as in principle, the method can capture changes in productivity (Diewert 2008). The likely issue with the unit cost method is that one needs to collect cost data with splits at the component level of the output, i.e. costs need to be split between different types of programs (broadcasting news, drama, and other)."

Australian Bureau of Statistics (2013)

Discussions with the public service provider indicate that the second method (unit cost method) may be a workable solution to pricing this segment.

Challenges.

- Segmentation (weights) due to no explicit classification of activities as observed in 59.1.
- Willingness of a small number of respondents (who represent a large proportion of coverage) to contribute data to the survey. Investment in provider engagement and maintenance is a necessity.
- Public segment – Unit cost method fine level data requirements.

8. Evaluation of comparability of price indexes with turnover/output data

Data from the SBS is used as a frame. The SBS provides essentially the same frame from SCB's Business Register augmented with further layers of data and classification to the product level providing a frame that is more fit-for-purpose for price statistics. The use of SBS data ensures alignment of price statistics outputs with National Accounts outputs.

Price indices for 59 are currently in the development phase. Sweden will, as of 2017, be producing trial indices available for internal assessment. Assuming that the indices satisfy internal quality criterion they will be available to be used as deflators in ISP (Index of Service Production) as well as in National Accounts. They will also be publically available and published with the overall suite of PPIs.

9. Summary

Outcome of research. Analysis within this report is based on ongoing research. International knowledge is limited and hence this paper has explored not only pricing methods but provided a review of how the industry works in general. Research to date has included discussions with associations and organisations; a sample of enterprises; and readings from annual reports and industry publications. Development of price indicators for CPA 59 will lead to the use of more conceptually correct deflators for the compilation of Swedish economic statistics.

Classification and segmentation. Challenges arise due to shortfalls in the classification structure where there is a high volume intra-divisional transactions recorded at a fairly high aggregated level. An investigation to map transactional flows to a lower level of the aggregation structure may be of benefit to further improve understanding of how different categories relate to one another.

Respondent engagement and sample maintenance. High market concentration and complexity of compilation methods will require investment in initial personal visits and an ongoing high degree of maintenance contact with enterprises to ensure index representativeness from implementation to ongoing production.

Pricing methods. CPA 59 entails a variety of different activities and subsequent solutions for the accurate measurement of inflation. Pricing methods for 59.110 and 59.130 are reliant on indexes being produced for 59.120 and 59.140 respectively. Pricing methods are diverse and include: Direct use of prices for repeated services; contract pricing; component pricing; model pricing; “buyer-side” pricing; time based pricing; and CPI-sourcing.