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Cross Cutting Topics – Part 1

CPI use in PPI context

Hungary

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The views expressed in this paper are those of the author alone and do not necessarily represent the position of HCSO or any other organization with whom the author may be affiliated.

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1. INTRODUCTION

In the line with the objectives of the general development of service statistics within the European Statistical programme (ESP) and a planned Framework Regulation Integrating Business Statistics (FRIBS), the extension of coverage of the actually produced Service Producer Price Indices (SPPIs) will be necessary. Among others, SPPIs are expected to be used primarily as deflators for producing of volume indicators (real GDP and Index of Services Production, ISP).

Taking into account available resources – both human and financial, as well as statistical burden on respondents – concerning some service areas – it seems to be considerable using of other available data sources, primarily Consumer Price Indices (CPIs) as proxies for SPPIs.

At present, production of SPPIs in European Union is required by the European Council Regulation on short-term statistics (STS Regulation¹) for determined services activities (see Annex). According to this regulation SPPI express the average price development of services provided by the resident producers and sold to customers that are enterprises or persons representing enterprises (business to business, B2B).

To produce appropriate quality volume indicators, SPPIs should reflect the structure of the turnover/output to be deflated, so consistency between the turnover/output data and deflators must be ensured. For this reason it may be recommended to calculate a sub-index for all relevant submarket, especially for demand of businesses (B2B)

The overall objective of this paper is to summarize the possible areas of using CPIs as proxies for the SPPIs.

2. EUROPEAN STS COVERAGE BY SPPIs

2.1. The size of the services industry in Hungary

In Hungary, the GDP share of services is higher than two-thirds related to the total national economy.

In 2011 within the broadly defined services sectors the largest proportion, almost half of the total gross value added is represented by the performances of market services providers (47%), while the share of the non-market services² is 17%.

The remaining sections of economy (A-F)³ cover around 36% of gross value added.

In European Union SPPIs are classified as principal economic STS indicators (PEEI)⁴ – actually concerning four sections according to the NACE Rev. 2.

¹ (EC) NO 1158/2005 of the European Parliament and of the Council of 6 July 2005 amending Council Regulation (EC) NO 1165/98 concerning short-term statistics.

² O: Public administration and defence; compulsory social security; P: Education; Q: Human health and social work activities

³ A: Agriculture, Forestry and Fishing; B: Mining and quarrying; C: Manufacturing ; D: Electricity, gas, steam and air conditioning supply; E : Water supply, sewerage, waste management and remediation activities; F: Construction

- H Transportation and storage;
- J Information and communication;
- M Professional, scientific and technical activities;
- N Administrative and support service activities

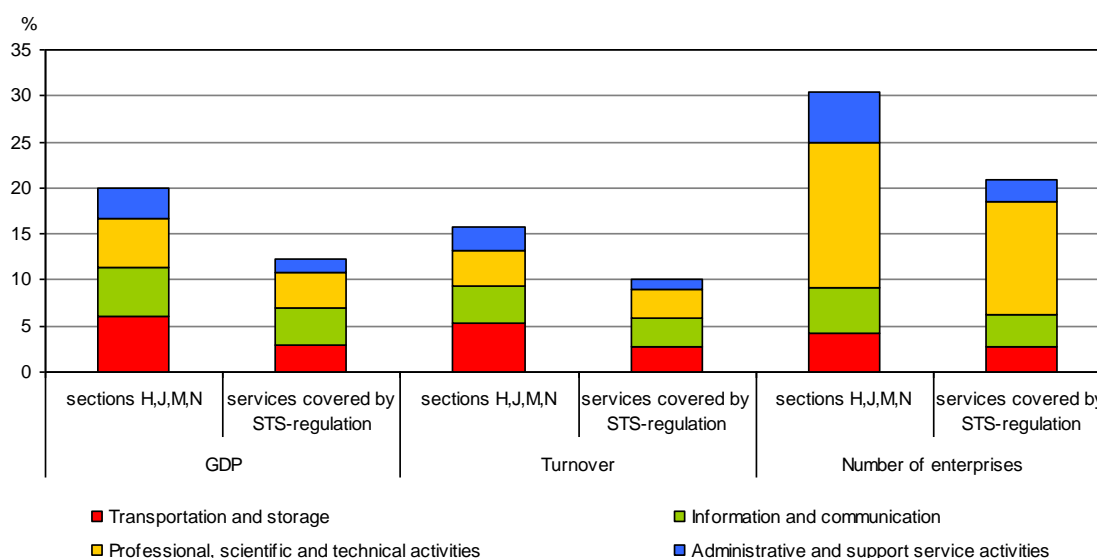
However, it should be noted that the above mentioned industries are not fully covered by SPPIs.

2.2. Services producer price indices, SPPIs in Hungary

In Hungary similarly to other European countries – at the level of the total national economy – the above four sections concerned by price statistical observations accounted altogether⁵ for 20% of gross value added and 16% of net sales in 2010, while services included in the STS Regulation covered 12% and 10% respectively. The presented price indices' aggregate share of total GDP and net sales figures at basic prices of the four sections concerned by observations is around 60%.

Figure 1

The main economic indicators of services covered by STS-regulation in Hungary compared to the total national economy, 2010



In accordance with the STS Regulation in most of European countries the producer price indices of services provided to business partners (B2B) have been published so far. However, according to the international methodological handbooks and proposals, to calculate performance indicators at constant prices concerning the total industrial turnover/output – B2All deflators are needed.

⁴ STS, Principal European Economic Indicators – PEEIs: industrial production index, industrial output price index for domestic market, industrial new orders index, industrial import price index, production in construction, turnover index for retail trade and retail, turnover index for other services, corporate output price index for services

⁵ According to the STS Regulation the four sections concerned in the NACE Rev.2 classification: H – Transportation and storage, J – Information and communication, M – Professional, scientific and technical activities, N – Administrative and support service activities.

To establish an internationally comparable indicator of services production (ISP) – covering the total services output – it is needed to use deflators, which reflect the average price development of the total output as follows:

- *coverage of the industries included in the future ISP;*
- *coverage of all destinations regarding the residency of client*
- *coverage of all destinations regarding the type of customer (business, household, other).*

Coverage of the industries included in the future ISP

In the current STS Regulation regarding the four included sections (see above) are not covered some economic activities with significant turnover or value added share, for example H – land transport; passenger transport, J – publishing; motion pictures, video, broadcasting; M – scientific services, other professional, scientific and technical activities; N - rental and leasing; landscape activities, office administration.

On the other hand – beyond the current STS regulation, regarding the coverage of the ISP – in majority of European countries sections I55&I56 - accommodation and food services and L68 – real estate activities are not covered by SPPI indices.

Coverage of all destinations regarding the residency of client

By the STS regulation services provided by the resident producers should reflect both domestic and non-domestic price developments, however the separate calculation and dissemination of SPPI indices by sales destinations has not been compulsory so far.

In Hungary both domestic (prices of services provided for customers resident in Hungary) and export prices (prices of services provided for customers non-resident in Hungary) are collected and included in B2B SPPI. They have not been published as a B2E sub-index separately yet.

Coverage of all destinations regarding the type of customer

SPPIs, when using them as deflators of the total industrial output, theoretically should cover all types of users (B2All):

- ***businesses (B2B)*** (currently – as a result of a previous European Task Force consultations – the B2B index reflects the price development of sales for public organizations and exports as well).
- ***households (B2C)*** – business to customers.

In most of cases the output of services production is predominantly accounted from sales for the business partners, therefore B2B indices are adequate estimations for the B2All SPPIs. At the same time – in some cases – the demand of households is also significant, so B2B indices should be supplemented by other deflators, first off all by properly adjusted consumer prices (CPIs). For this reason the development of B2All indices beside compulsory B2B indicators seems to be necessary.

2.3. Use of CPI/HICP data as proxies for SPPIs

By Eurostat's proposals⁶ use of additional data like CPI (Consumer price index) or HICP (Harmonized Index of Consumer Prices) to estimate B2C indices could be an appropriate solution to calculate a B2All index at required level.

⁶ Eurostat, SPPI Task Force document, 2009

By the revised SPPI methodological guide⁷ using CPIs as proxies can be considered as special case of one of the proposed pricing method – „direct use of prices of repeated services”. However it is important to adjust CPIs valuated at purchasers prices, to basic prices (i.e. effects of taxes and subsidies on prices have to be removed) before their use as deflators of services turnover. On the other hand, when applying CPI’s, it is assumed that prices for businesses and households move in a similar trend with a similar composition of consumption.

Three possible approaches could be taken into account: a) using B2B SPPIs regardless of the mismatch, b) develop B2All SPPIs, c) use a mixed approach which combines SPPI and other deflator data, primarily CPIs.

Possible areas of use of CPI’s in PPI context

According to the current STS coverage of compulsory SPPIs (17 services groups), the following possible areas could be completed by consumer price indices – using CPIs as proxies for B2C, then B2All indices:

Services activities with the significant share of the household’s consumption

- Sea and coastal transport (H 50.1+50.2)
- Air passenger transport (H51)
- Post and courier activities (H53)
- Telecommunications (J61)
- Legal services (including in the sum of M 69.1+69.2+70.2)

In Hungary, from the 1st quarter of 2013, beside the B2B SPPIs required by STS-regulation, B2All SPPIs for air passenger transport, post and telecommunication services are also produced and for two latter disclosed.

B2All SPPIs are produced by conjointly use of CPIs/HICPT with B2B SPPIs, computed as weighted average of the SPPI an HICP-CT.

3. EXAMPLES

In accordance with the STS-SPPI coverage, the estimated weights for calculation of B2All SPPIs using adequate sub-indices for B2B and B2C submarkets are presented in the next Table.

⁷ OECD – EUROSTAT, **Methodological guide for developing producer price indices for services** (draft version)

Table

The estimated turnover share for B2B and B2C markets

Hungary, Total Turnover=100%

CPA 2008	Name	Estimated Turnover share	
		B2B	B2C
H51	<i>Passenger air transport</i>	20	80
H53	<i>Postal activities</i>	75	25
J61	<i>Telecommunication</i>	35	65

Figure 2

Quarterly B2All SPPIs for Postal activities (H53)2010=100

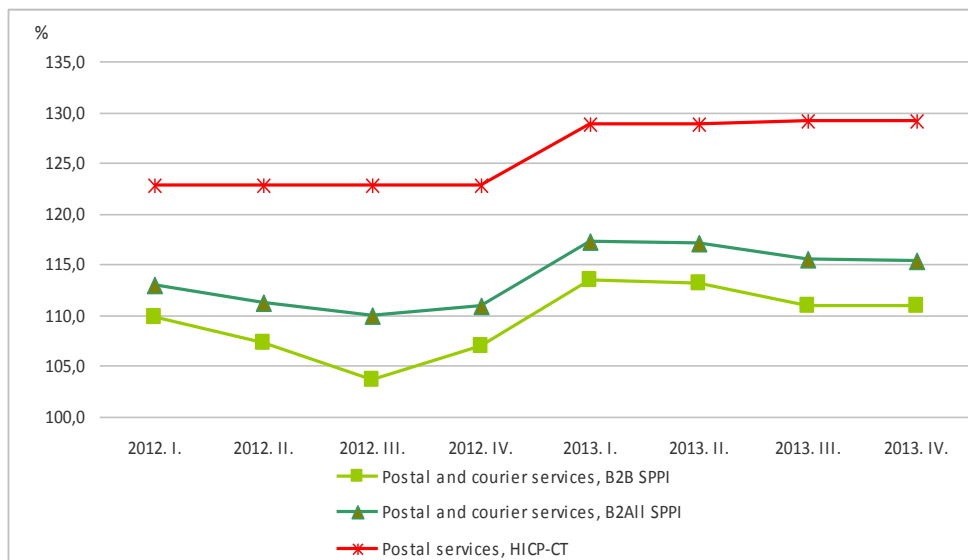


Figure 3

Yearly B2All SPPIs for Postal activities (H53, previous year=100)

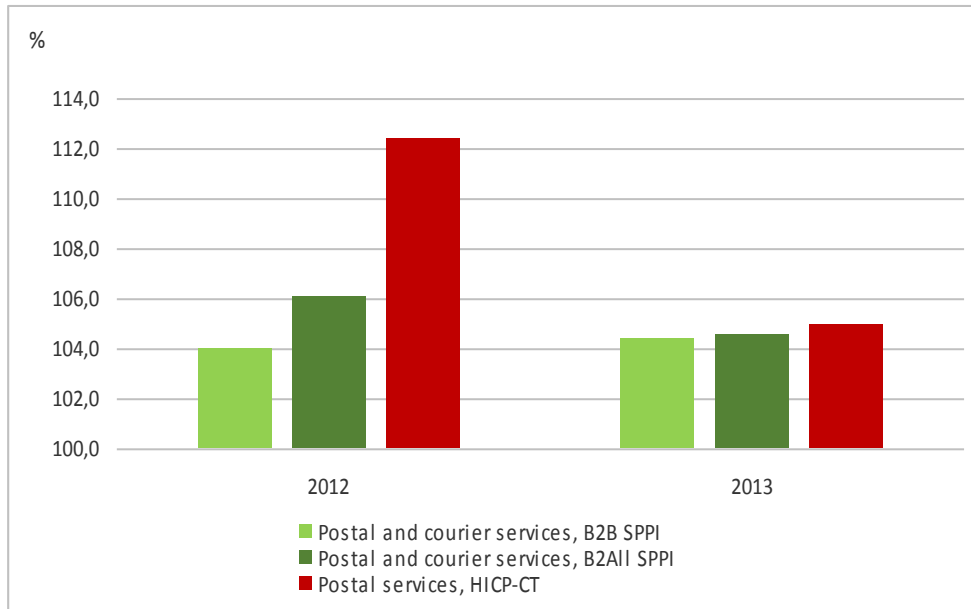


Figure 4

Quarterly B2All SPPIs for Telecommunication (J61), 2010=100

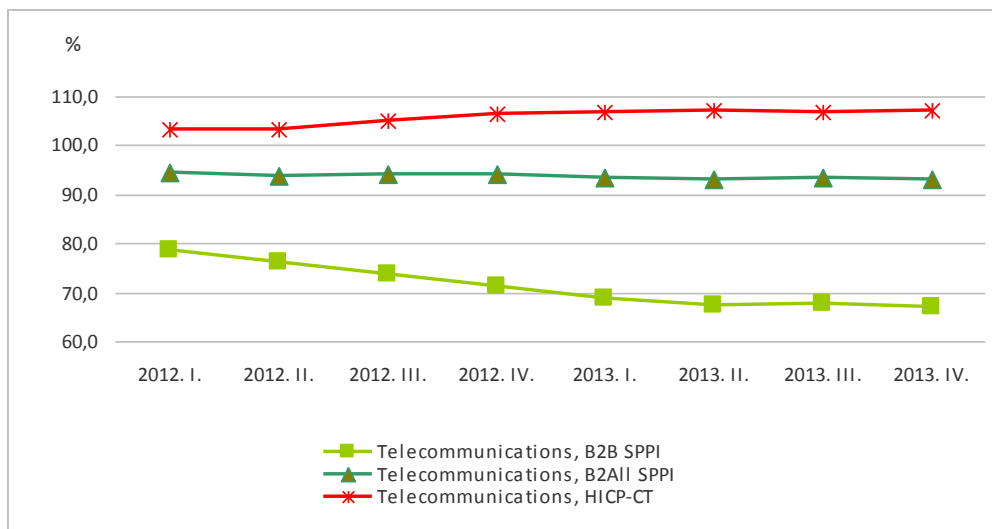
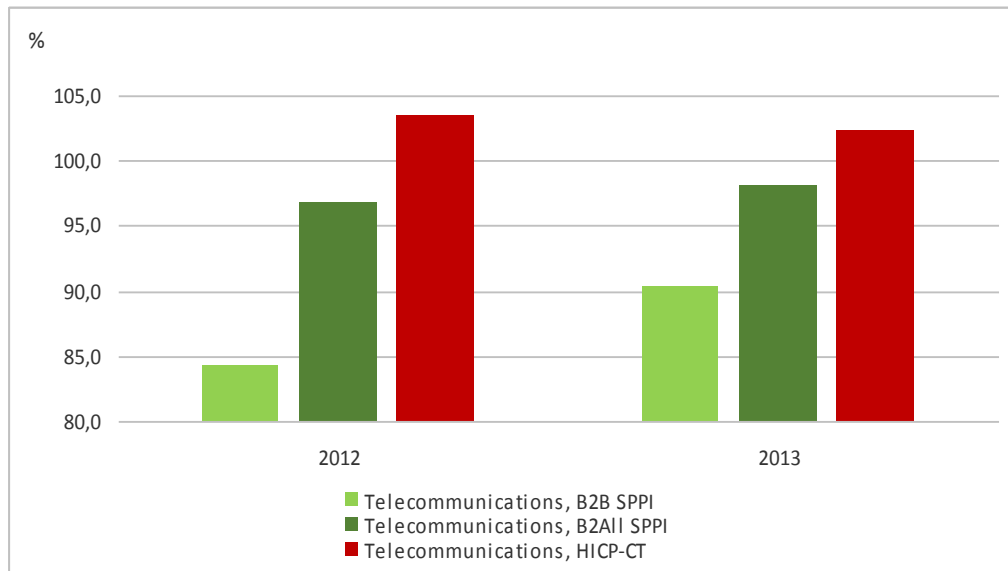


Figure 5

Yearly B2All SPPIs for Telecommunication (J61) previous year=100



Possible areas of use of CPI's as proxies beyond the current STS regulation

For estimation of SPPIs by Harmonised Indices of Consumer Prices (including back-data revisable under the terms set in Commission Regulation (EC) No 1921/2001) the next areas could be taken into account:

- *Housing*
- *Health*
- *Transport*
- *Communication*
- *Recreation and culture*
- *Education*
- *Hotels and restaurants*
- *Miscellaneous (e.g. Finance and Assurance)*

For example, as estimated deflators for calculation of volume indicators could be used the following service activities: accommodation, food and beverage activities, publishing, travel agency and related services. In most of areas a conjointly use of B2B and B2C would be necessary. CPIs would have to be converted to basic prices (see above).

The **main differences** between SPPI and CPI/HICP could be observed concerning the next issues:

- Overall methodology used;
- Classification (NACE / COICOP);
- Periodicity (Quarterly, monthly);
- Prices observed (output(basic) prices / consumer prices);

- Questions on industry- or product-based type of the volume indicator;
- Questions on domestic/non-domestic share of the markets;
- Questions on methodology to be used: industry-specific or other approach?
- Questions on approaches to be followed: Mixed approach (combination of B-B with B-C or with other deflators) or separately using of CPI's or other deflators?

Main challenges

Use of an appropriate **CPI/HICP-CT** (Harmonized Index of Consumer Prices at constant tax) **as proxy for SPPI's** (for which areas, questions on coverage)

In case of conjointly using of CPI / HICP with SPPIs, the following issues is needed to consider:

- How to produce B2All SPPIs?
- How to identify B2B and C2C markets?
- What is the turnover share between the business and households consumption?
- How to estimate export?

3.1. New areas

In 2013 Hungary started to develop a methodological basis for new SPPIs and deflators for calculation of value data concerning four service divisions as follows:

- 1: *Land transport and transport via pipelines (H49);*
- 2: *Real estate activities (L68);*
- 3: *Other professional, scientific and technical activities (M74);*
- 4: *Rental and leasing activities (N77).*

The B2All SPPIs are expected to be produced as weighted average of relevant sub-indices: B2B and B2C SPPIs. B2C will be estimated by HICPs.

For these new areas – based on content of services included in correspondence table between COICOP 1999 and CPA 2008 – the possible areas of using of CPIs/HIPS as proxies for SPPIs are presented in Tables (2-5).

4. SUMMARY

In Hungary within the frame of the Hungarian SPPI observation system, actually the services areas required by the European STS-regulation are covered by producer price indices. Primarily the product-based B2B price indices are calculated, however, B2All indices are also produced as weighted average of B2B and B2C SPPIs. B2C is estimated by HICP (Harmonized Index of Consumer Prices) in 3 areas: air passenger transport, postal activities and telecommunication, from which the latest 2 are disclosed.

In 2013 Hungary started to develop a methodological basis for new SPPIs and deflators for value data concerning four service divisions: *Land transport and transport via pipelines (H49), Real estate activities (L68), Other professional, scientific and technical activities (M74); and Rental and leasing activities (N77)*. For these new services industries also the B2All SPPIs are expected to be produced by conjointly use of B2B and B2C SPPIs, using HICPs as proxies for consumption of households.

APPENDIX
Observed service activities according to the European STS-regulation

NACE Rev.2	Services groups (ANNEX D)
49.4	Freight transport by road and removal services
50.1 + 50.2	Sea and coastal passenger and freight water transport
51	Air transport
52.1	Warehousing and storage
52.24	Cargo handling
53.1	Postal activities
53.2	Other postal and courier activities
61	Telecommunications
62	Computer programming, consultancy and related activities
63	Information service activities
69_702	Legal and accounting activities; management consultancy activities
71	Architectural and engineering activities; technical testing and analysis
73	Advertising and market research
78	Employment activities
80	Security and investigation activities
81.2	Cleaning activities

TABLES

Table 1

CPA 2008: H49 (with limited coverage)

CPA 2008	Name of the service	COICOP 1999	Name of the service	B2B			B2C			B2All		
				SPPI	CPI	B2All	SPPI	CPI	B2All	SPPI	CPI	B2All
H49	Land transport services and transport services via pipelines			√				√				√
4910	Passenger rail transport services, interurban	07.3.1	Passenger transport by railway		√			√			√	
4920	Freight rail transport services			√			√			√		
4931	Urban and suburban passenger land transport services	07.3.1	Passenger transport by railway		√			√			√	
		07.3.2	Passenger transport by road									
4932	Taxi operation services	07.3.2	Passenger transport by road		√			√			√	
4939	Other passenger land transport services n.e.c.	07.3.2	Passenger transport by road		√			√			√	
4941	Freight transport services by road			√			√			√		
4942	Removal services			√			√			√		
4950	Transport services via pipeline			√			√			√		

Table 2

CPA 2008: L68 (with limited coverage)

CPA 2008	Name of the service	COICOP 1999	Name of the service	B2B			B2C			B2All			
				SPPI	CPI	B2All	SPPI	CPI	B2All	SPPI	CPI	B2All	B2B + B2C
68	Real estate services			√				√				√	
6810	Buying and selling services of own real estate	12.7.0	Other services i.e.	√				√				√	
6820	Rental and operating services of own or leased real estate	04.1.1	Actual rentals paid by tenants										
		04.1.2	Other actual rentals										
		09.2.3	Maintenance and repair of other main durables for recreation and culture	√				√					√
		11.2.0	Accommodation services										
		04.2.4	Other services relating to the dwelling n.e.c.										
6831	Real estate agency services on a fee or contract basis			√						√			
6832	Management services of real estate on a fee or contract basis			√						√			

Table 3

CPA 2008: M74 (with limited coverage)

CPA 2008	Name of the service	COICOP 1999	Name of the service	B2B			B2C			B2All				
				SPPI	CPI	B2All	SPPI	CPI	B2All	SPPI	CPI	B2All	B2B + B2C	
M74	Other professional, scientific and technical services													✓
7410	Specialized design services	04.3.2	Services for the maintenance and repair of the dwelling	✓			✓			✓				
7420	Photographic services	09.4.2	Cultural services	✓				✓						✓
7430	Translation and interpretation services	12.7.0	Other services n.e.c.	✓			✓			✓				
7490	Other professional, scientific and technical services n.e.c.	12.7.0	Other services n.e.c.	✓			✓			✓				

Table 4

CPA 2008: N77 (with limited coverage)

CPA 2008	Name of the service	COIC OP 1999	Name of the service	B2B			B2C			B2All				
				SPPI	CPI	B2All	SPPI	CPI	B2All	SPPI	CPI	B2All	B2B + B2C	
N77	Rental and leasing services			✓				✓						✓
7711	Rental and leasing services of cars and light motor vehicles	07.2.4	Other services in respect of personal transport equipment	✓				✓						✓
		09.4.1	Recreational and sporting services											
7712	Rental and leasing services of trucks	07.2.4	Other services in respect of personal transport equipment	✓						✓				
7721	Rental and leasing services of recreational and sports goods													
7722	Rental services of video tapes and disks	09.4.2	Cultural services											
7729	Rental and leasing services of other personal and household goods	03.1.4	Cleaning, repair and hire of clothing											
		03.2.2	Repair and hire o footwear											
		05.5.1	Major tools and equipment											
		05.5.2	Domestic services and household services											
		06.2.3	Paramedical services											
		09.4.1	Recreational and sporting services											
		09.4.2	Cultural services											
7731	Rental and leasing services of agricultural machinery and equipment			✓						✓				
7732	Rental and leasing services of construction and civil engineering machinery and equipment			✓						✓				
7733	Rental and leasing services of office machinery and equipment (including computers)	09.1.3	Information processing equipment											
7734	Rental and leasing services of water transport equipment	09.4.1	Recreational and sporting services											
7735	Rental and leasing services of air transport equipment	09.4.1	Recreational and sporting services											
7739	Rental and leasing services of other machinery, equipment and tangible goods n.e.c.	07.2.4	Other services in respect of personal transport equipment	✓						✓				
		09.4.1	Recreational and sporting services											
7740	Licensing services for the right to use intellectual property and similar products, except copyrighted works			✓						✓				