Recent developments for quarterly service turnover indices [1]

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Abstract

The European Statistical System has put more attention on activities to improve quality, frequency and coverage of short term indicators for the service sector The aim is to implement a set of indicators similar to those already available for the manufacturing sector. Within this framework, Istat has put forth an intensive effort to complete the set of indices required by European regulations, both for Service Production Prices and for quarterly Turnover Indices. Concerning Turnover, in 2011 a new survey was launched to obtain indices for Wholesale and retail trade and repair of motor vehicles and motorcycle (NACE G45), Land transport and transport via pipelines (NACE H49), Warehousing and support activities for transportation (NACE H52), Accommodation (NACE I55) and Food and beverage service activities (NACE I56). The aim of this paper is to describe the operational and methodological choices carried out for the release of the indices according to the Generic Statistical Business Process Model (GSBPM), together with the economic findings associated with the new indicators

Keywords: Short-term statistics indicators, Turnover, Services Sector. JEL: C43, C81, L80

1. Introduction

In 2011 in Italy services sector enterprises were almost 3.3 million, employing 10.6 million workers. According to the census data, in the period 2001-2011, the number of enterprises in services sector increased by 13.1% while in the manufacturing sector decreased by 23.6%. The number of employees increased by 17.6% and decreased by 17.5% in manufacturing (Istat, 2013). According to Structural Business Statistics in 2010 the service sector represented 76.0% of enterprises, 63.3% of employees and 56.9% of the value added (Istat, 2012b). The growing importance of the service sector in the Italian economy has been similar to that of other European countries.

This phenomenon has corresponded to an increase in the analysis of the sector's performances both at an international (for example Giovannini and Caves, 2005, *Voorburg group on services statistics*) and national level (for example Cipolletta, 2013), together with the analysis of the interaction between services and industry (for example, Evangelista et al, 2013). This process has been associated with a constant improvement of the measuring instruments.

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In 2011, Eurostat launched a survey within the European Statistic Offices requesting information regarding the activities planned to further available information on short term statistics for quarterly turnover indices and for Services Production Prices indices. The results have been presented on December 2011 during the meeting held by the Working Group on Short-Term Economic Statistics. The main idea was to analyse the activities scheduled and the modalities necessary to reduce the gap between statistics in the services and manufacturing sector. The working group approved also the creation of an apposite task-force to explore the methodology necessary for realising an index of production on services, that is already released by the United Kingdom and Sweden.

In coherence with this description, Istat's strategic aim for the period 2010-2013 has been to complete the set of indices for the services sector as required by European Regulation (Regulation No 1158/05 of the European Parliament and of the Council, annex D). For the quarterly turnover indices, this implied the realisation of new surveys to increase the coverage of the indices already produced for other economic activities.

The planning and launch of the new surveys made possible, in March 2012, the release of the indices for: the Divisions [1]45 (Wholesale and retail trade and repair of motor vehicles and motorcycles), completing the G Section (equal to 8.9% of the turnover[2]), 49 (Land transport and transport via pipelines) and 52 (Warehousing and support activities for transportation) completing the H Section (equal to 10.1% of the turnover), 55 (Accommodation) and 56 (Food and beverage service activities) that compose the I Section (equal to 6.0% of the turnover).

With the launch of the implemented surveys the coverage has reached 84.9% of the total turnover allowing the compilation of the aggregate index for the services. Moreover, during 2013, saw the launch of new surveys for the economic sectors referred to the M and N Sections (Professional, scientific, technical, administration and support service activities) have been launched and the sample size for the quarterly survey on turnover for services sector has increased to 19,400 units. The indices of these sectors have been released in June 2014 during the revision process of the current article. We have accounted for these new results in the dissemination paragraph where the total index for turnover in the services is presented.

The statistical process phases concerning the new surveys have been done implementing, where necessary, the general framework already in use in the survey for the quarterly turnover for which a review took place in 2010 (Bacchini et al., 2012). The development has been carried out using as reference the *Generic Statistical Business Process Model* (GSBPM hereafter, UNECE 2009). The GSBPM turned out to be a flexible tool able to highlight the single phases of the productive process considered as an innovation object. To our knowledge this is the first Istat survey documented by means of the GSBPM conceptual framework.

Within the survey plan definition, particular attention has been paid to the point of view of the relevant users (Trade Associations). Their collaboration has been important for the introduction of innovations regarding data collection, estimation method and release of new indices. In particular, the methodological analysis of indices calculation resulted in the introduction of an estimator for expansion instead of the one already used for the indices previously implemented.

The aim of this work is twofold. Firstly, it serves to provide a description of the operative and methodological choices implemented to launch the new surveys and to produce estimates of the respective indices are described. Secondly, the economic characteristics of the quarterly index for the total turnover in the services and the new division are explored looking at the

[1] Since January 2008 Istat has adopted the new ATECO 2007 classification of economic activities (Istat, 2009). This classification is the national version of the European nomenclature, Nace Rev. 2 (hereafter NACE) and is organised in Sections, Divisions, Groups and Classes.

[2] According to the structure of the weights of the base 2010 = 100.

comparison with the main European countries. A comparison between the business cycle characteristics for manufacturing and services is also provided for the period 2010-2014 (first quarter).

In particular, the second paragraph specifically describes the GSBPM model. Subsequent paragraphs are focused on the activities that have characterised the GSBPM's single phases (described in Section 2): information needs (Section 3), design phase (Section 4), the system for data collection (Section 5) and the sample selection (Section 6) for the turnover service survey. After describing the enterprises collaboration (Section 7), the new indices profiles, together with European comparison, are presented (section 8). Conclusive remarks will follow (Section 9).

2. The GSBPM model

The quarterly turnover services survey has been subjected, during the 2010-2011, to profound reorganisation. These changes have brought about the realisation of a new procedure for data collection and recall procedures, the analysis of the coherence of the turnover's definition, a new website for data collection using the Indata platform, a reorganization of the database and of the procedure used for survey management (Bacchini et al,2012). Concurrently, in June 2010, the release of seasonally adjusted data began (Iaconelli et al, 2014).

The Generic Statistical Business Process Model has been chosen to give a general framework of these activities and of those done for the new surveys (Unece 2009).

The version of the current model (4.0 version) has been approved by the Directive Group on the metadata founded by UNECE, EUROSTAT and OECD and issued to the public on April 2009.

The GSBPM's original intention was to give the statistic institutes a common framework on standard terminology and to aid their discussion about the systems development of statistic metadata and processes. The GSBPM represents a flexible tool to describe and define the different phases necessary for the production of official statistics. The model represents a development of the one used by Statistics New Zealand. Istat started a discussion on the potentialities of this model at the beginning of 2012 within the innovation committee.

In GSBPM terms (Figure 8 in the Appendix), the measures adopted towards changes in survey organisation for the services turnover implemented in 2010, were aimed mainly to define the framework (phase 2), the construction (phase 3), the data collection (phase 4), the process (phase 5), the analysis (phase 6) and the diffusion (phase 7).

Starting from the innovations and following the GSBPM scheme, the activities for the launch of the new surveys have concerned the information needs (phase 1), contextually for the necessary operations to define the framework (phases 2 and 4) and the collection phase's implementations (phase 3). Particular attention has been paid towards both the analysis of the estimator used to the indices calculation (phase 6) and the release phase (phase 7). This has made possible the release of an aggregate index for the services sector for the first time.

In Figure 9 (Appendix) are highlighted the phases and steps developed for the launch of the new surveys. In the following sections we describe the implementation of these steps.

3. The identification of the needs for information

Regarding the launch of the new surveys particular attention was paid to the point of view of the main users. Together with the mandatory requirements expressed by European Regulation on Short-term Statistics, the needs of the associations of the new economic sectors were considered.

3.1 European Regulation on short term statistics

Quarterly indices of services turnover fall within the Group of Principal European Economic Indicators (PEEIs), for which a specific European regulation (Regulation (EC) No 1165/98, amended by Regulation (EC) no 1158/2005) establishes the characteristics of coverage, frequency and timeliness. The PEEIs, which include among others the monthly indices of industrial production and retail sales, are used for monitoring European economic situation.

Until March 2012, Istat elaborated only one part of turnover indicators required by the European Regulation. These indicators represented a share in turnover equal to 59.9% of the total.

To complete the set of indices, Istat developed a two-phase strategy. The first started in 2010 and led to the launch of new surveys and to the dissemination of the related indicators for divisions 45 (Wholesale and retail trade and repair of motor vehicles and motorcycles), 49 (Land transport and transport via pipelines), 52 (Warehousing and support activities for transportation), 55 (Accommodation) and 56 (Food and beverage service activities). In such a way the coverage of the sector reached 84.9% (Table 1).

The second referred to a portion of economic activities included in Sections M (Professional, scientific and technical activities) and N (Administrative and support service activities) and was initiated in 2013 with the launch of new surveys. The coverage for these sectors is 15.1% of the total turnover. The indices for these sectors were released in June 2014[3].

Table 1 - The weights in 2010 for quartely turnover indicators of services

Nace (Rev. 2)	Economic Activities	Weights 2010
G45	**Wholesale and retail trade and repair of motor vehicles and motorcycles**	10.200
G46	Wholesale trade, except of motor vehicles and motorcycles	46.046
H49	**Land transport and transport via pipelines**	5.827
H50	Water transport	1.085
H51	Air transport	0.726
H52	**Warehousing and support activities for transportation**	4.272
H53	Postal and courier activities	0.625
I 55	**Accommodation**	1.732
I 56	**Food and beverage service activities**	4.267
J	Information and communication	10.153
	Total published before June 2014	**84.933**
M69	Legal and accounting activities	3.064
M70.2	Management consultancy activities	1.361
M71	Architectural and engineering activities; technical testing and analysis	2.227
M73	Advertising and market research	1.257
M74	Other professional, scientific and technical activities	1.280
N78	Employment activities	0.555
N79	Travel agency, tour operator reservation service and related activities	1.123
N80	Security and investigation activities	0.318
N81.2	Cleaning activities	1.224
N82	Office administrative, office support and other business support activities	2.658
	Total released in June 2014	**15.067**
	Total	**100.000**

[3] A detailed analysis of the GSBPM characteristics for these sectors will be completed in the next months.

Concerning the new sector described in this article Eurostat regulation requires the indices reported in Table 2.

Table 2 - Indices of turnover required by STS regulation

Sections	Divisions	Indexes required by STS Regulation
G	45	45; 45.2; (45 - 45.2)
H	49	49
H	52	52
I	55	(55 + 56)
I	56	

3.2 Collaboration with trade associations

The economic characteristics of the new sectors were discussed with the representatives of industry associations. The criteria used in participants selection were of an inclusive type trying to reach the maximum number of representative users for these sectors. The meetings highlighted significant attention to the issue of new economic indicators on services, highlighting the gap compared to information available for other European countries. These meetings, started in November 2010, were opportunities for:

- integrating Istat information sources on enterprises with those available from trade associations;
- sharing the joint dissemination plan for each sector;
- encouraging enterprises to cooperate in the survey.

3.2.1 Wholesale and retail trade and repair of motor vehicles and motorcycles

The **Division 45** (Wholesale and retail trade and repair of motor vehicles and motorcycles) associations with which Istat was able to discuss are related to *Confcommercio* and they were:

- *FEDERAUTO* (Federazione italiana concessionari auto, Italian Association of car dealers), comprising the associations of undertakings dealerships for distribution and after-sales services for vehicles;
- *FEDERMOTORIZZAZIONE* (Federazione nazionale dei commercianti della motorizzazione, Italian Association of vehicles Traders), which represents the entrepreneurial category of dealers of motor vehicles, motorcycles and mopeds, spare parts, accessories and lubricants for motor vehicles, motorcycles and mopeds and of tyre dealers;
- *UNRAE* (Unione Nazionale Rappresentanti Autoveicoli Esteri, Association of foreign car makers operating in Italy), which represents foreign companies operating in the Italian market of passenger cars, commercial and industrial vehicles, buses, caravans and motor homes.

These meetings made possible to identify the minimum level, in terms of disaggregation NACE, at which indicators are required. Consistent with the objectives of each association, the request was of specific indicators of turnover at the Group level (45.1, 45.3 and 45.4). It is important to stress that the quarterly index for Group 45.2 has been already published by Istat since 2000.

With respect to information integration, it was possible to analyse in depth the features of the Statistical Register of Active Enterprises available in Istat (ASIA) using microdata from UNRAE source registrations referred to the year 2010. Through a record linkage of these enterprises with the ones in the ASIA database, referring to the year 2008 and using the VAT number, it has resulted a high level of overlap (91.5% representative units, the 96.7% of registrations). The enterprises, for which a link was not found, were the subject of further analysis. The predominant reason for not linking is connected to corporate transformations that occurred between 2008 (reference year of ASIA) and 2010 (base year of registrations). Taking into account this aspect, the overlap has covered 98.9% in terms of number of enterprises, and 99.8% in terms of vehicles registered.

3.2.2 Land transport and transport via pipelines

The **Division 49** (Land transport and transport via pipelines) is quite heterogeneous in terms of type of activities. This evidence supported the need for a contact with different categories of associations. In particular we developed a collaboration with:

- Confederations:
  - the infrastructure manager of *CONFINDUSTRIA* (Confederazione generale dell'industria italiana, the main Italian Association representing manufacturing and service companies);
  - *CONFETRA* (Confederazione generale italiana dei trasporti e della logistica, Italian Confederation of Transport and Logistics), which operates for companies in the sectors of transport, shipping, logistics and storage of goods;

- Industry associations:
  - *FEDERTRASPORTO*, which accommodates operators' associations and operators of transport infrastructure, logistics and tourism adhering to Confindustria;
  - *ASSTRA* (Associazione Trasporti, Italian Association of local public transport companies), acting on behalf of local public transport companies, both owned by local private bodies;

- Trade associations:
  - *ANITA* (Associazione Nazionale Imprese Trasporti Automobilistici, Italian Association of Automobile Transport Companies), which brings together associations of transport and logistics of *Confindustria* and has the coordination of freight transport. Anita is the Trade Association of road haulage by *Confindustria* and a constituent organisations of Member of *Federtrasporto*.

In meetings that were held between January and February 2011 these organisations illustrated the opportunity to have an index for: Passenger rail transport and interurban (49.1), Freight rail transport (49.2), Urban and suburban passenger land transport (49.31), Freight transport by road (49.41) underlining in this last case the need for deeper information on the dynamics of turnover according to the type of transport (car transporter, combined, containers, refrigerated, not refrigerated food, oversize load, hydraulic binders, dangerous goods, garbage, other).

As auxiliary sources of information on firms the register of enterprises with license and active in the rail sector (source Ministry of infrastructure and transport) and the one used for the railway transport survey in Istat were considered, while for Urban and suburban passenger land transport (NACE 49.31) the associated list of *Asstra* was used.

3.2.3 Warehousing and support activities for transportation

The economic activities represented by division 49 are related with those of **Division 52** (Warehousing and support activities for transportation). The common characteristic of the enterprises for this division is their role in a complex logistical task not immediately linked to a single item of the NACE. Besides *Confetra*, member of *Confindustria* and *Anita*, in the meetings was also involved *ASSOLOGISTICA* (Associazione Italiana Imprese di logistica, magazzini generali e frigoriferi, Italian Association of Logistics, general stores and refrigerators), directly connected to *Confetra* and member of *Federtrasporto*, *Confindustria*.

The collaboration led to the participation in the annual Confetra conference (Rome, February 1, 2011) and, following the invitation of Italian manufacturers' Association and member of Confindustria, in a meeting of the General Council for the road haulage and logistics at the Ministry of Infrastructure and Transport (Rome, February 8, 2011).

Analysis of logistics

Particularly attention was paid to the concept of logistics. Although the term is currently used in the business world and identifies the prevailing activity of the most important players, the word logistics was introduced only at the national level and it appears only in the Category 52.29.2 of the ATECO 2007 classification[4].

Following the request made by the associations of an index for the logistics sector, a text search in the company name was carried out for enterprises in ASIA database [5] using the key words *logistica*, *logistic* and *logistics*. The results obtained showed significant values, measured in terms of number of enterprises, employees and turnover for the following classes of economic activity:

- 49.41 (Freight transport by road);
- 52.10 (Warehousing and storage);
- 52.24 (Cargo handling);
- 52.29 (Other transportation support activities).

The selection identified overall 1,833 companies with activities definitely in the logistic sector. Of these, 1,593 (86.8%) belong to 4 specific economic activity classes. In Table 3 it is showed the prevalence of enterprises in the Class 49.41 (42.8%). Instead the highest percentage of employees is in the Class 52.24 (25.8%) and the one of turnover in Class 52.29 (35.5%).

Moreover, data reported in the Table 4 show the percentage of number of enterprises with word of logistic, number of employees and turnover on the totals for the 4 classes of economic activities. In particular, for Class 49.41 they represent the 0.9% of enterprises employing the 2.6% of workers and with turnover equal to the 3.7% of the total; for Class 52.10 these percentages are respectively 11.2%, 28.2% and 29.5%; in Class 52.24 5.3% for enterprises (6.5% for employees and 7.2% for turnover) and at last for Class 52.29 the 7.1% of enterprises (11.6% of employees and 10.8% of the turnover).

[4] The first four digits of the code, which is the first four levels of the classification system, are the same in all European countries. The fifth digit (categories) might vary from country to country and further digits are sometimes placed by suppliers of databases.

[5] Archive available at the time of designing was referred to the year 2008. Record linkage has been performed also with most recent version of ASIA and it did not emerge any significant change in the distribution.

Table 3 - Number and percentage composition of the enterprises that contain keywords in the class compared to the total enterprises that contain the keyword in the register Asia 2008

	49.41		52.10		52.24		52.29		Other	
	N. log	%	N. log	%	N. log	%	N. log	%	N. log	%
Enterprises	785	42.8	197	10.7	195	10.6	416	22.7	240	13.1
Employees	8,912	24.9	6,537	18.2	9,245	25.8	7,848	21.9	3,320	9.3
Turnover*	1,641	26.7	1,093	17.8	444	7.2	2,184	35.5	786	12.8

∗ Mln of Euro

Table 4 - Number and percentage composition of the enterprises that contain keywords in the class compared to the total class enterprises

	49.41			52.10			52.24			52.29		
	N. log	N. tot	%	N. log	N. tot	%	N. log	N. tot	%	N. log	N. tot	%
Enterprises	785	87,295	0.9	197	1,762	11.2	195	3,680	5.3	416	5,890	7.1
Employees	8,912	341,882	2.6	6,537	23,186	28.2	9,245	141,278	6.5	7,848	67,831	11.6
Turnover*	1,641	43,798	3.7	1,093	3,701	29.5	444	6,199	7.2	2,184	20,306	10.8

∗ Mln of Euro

Analysis of freight transport by road

For the road freight transport sector in Istat there is already a survey which provides information on transport flows and on the type and quantity of the goods transported. This survey is based on a sample of the registered vehicles, namely the single lorry registered in Italy whose activity of good transport is observed for one week.

The quarterly turnover survey, on the other hand, as unit of analysis uses the enterprises classified in the inland transport sector according to the prevailing economic activity. The register used for the extraction of the sample unit is ASIA.

As a first assessment of the differences between the criteria of eligibility of two surveys, a record-linkage has been made between the universe of vehicles (Ministry of Transport source) used to transport cargo and ASIA database[6]. The link was made using VAT number/tax code.

The Table 5 summarizes the results of the link.

For the class 49.41, where freight transport is on behalf of third parties, we have about $29,000$ enterprises with a total fleet of about $78,000$ units and $193,000$ employees. The high number of vehicles for Section K is due to the presence of enterprises in Financial service activities (K64) as for example Leasing activities (K64.91). The presence of vehicles in other sectors of economic activity is justified by own-account transport.

[6] The register used is the one for year 2008.

Table 5 - Result record linkage universe vehicle fleet - Asia 2008

Economic Activities	N. Vehicles	Employees	Enterprises
B - Mining and quarrying	2,242	24,655	698
C - Manufacturing	19,779	595,478	11,233
D - Electricity, gas, steam and air conditioning supply	743	42,497	68
E - Water supply; sewerage, waste management and remediation activities	8,969	113,471	2,190
F - Construction	33,785	305,313	22,215
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	33,652	263,799	15,994
H - Transportation and storage*	2,843	54,529	959
– H49.41 - Freight transport by road	**77,629**	**192,942**	**29,094**
– H49.42 - Removal services	212	1,003	163
I; J - Accommodation & food service activities; Information and communication	264	43,058	161
K - Financial and insurance activities	80,547	108,032	172
Other activities	4,556	85,116	2,418
	265,221	1,829,893	85,365

∗ Calculated without the Classes 49.41 and 49.42

3.2.4 Accommodation and food service activities

For **Section I** (Accommodation and food service activities) the collaboration with trade associations led to meetings with:

- *Associazione Italiana Confindustria Alberghi, Italian Association of Hotels* and *FEDERALBERGHI* (Federazione delle associazioni italiane alberghi e turismo, Italian Federation of Associations hotels and tourism) for the Division 55;
- *FIPE* (Federazione Italiana Pubblici Esercizi, Italian Association of restaurants, bars and catering businesses) for the Division 56.

Accommodation services associations focused their attention on the possible release of 3 indicators: one for the Division 55, one for the single Group 55.1 and one for the total excluding the Group 55.1. The associations highlighted also the need to assess the evolution of the turnover of the hospitality industry (55.1) separately for the accommodation service and for food & beverages service. For this reason a special section in the questionnaire was introduced to collect data on turnover separately for the two distinct services. In addition, to take into account of the seasonal characteristic, it was decided to ask for the number of days of openings in the quarter in addition to the number of rooms.

Through the meetings with trade associations it was also possible to promote the survey between the associated enterprises. Istat attended the meeting of the heads of the regional associations of hotel owners (Trento, February 12, 2011) to illustrate the content, the aims and the modalities of implementation of the new survey.

Regarding the food and beverage service sector the need for four indicators was expressed: one for the Division, one for each of the three Groups: *Restaurants and mobile food service activities*, *Event catering and other food service activities* and *Beverage serving activities*. With the aim to update the list of companies providing food and beverage services, a link between the list of companies associated with Fipe and enterprises in the ASIA database was performed. In order to raise awareness of restaurant operators to participate in the survey, Fipe published an article on Mixer magazine (Fipe, 2011) to announce the launch of the new survey.

The quarterly survey on turnover of Accommodation and Food Service Activities was also presented on 29 April 2011 at *Valorizzazione e responsabilità sociale della statistica pubblica*, organized in Rome by the Italian Statistical Society and 23 May 2011 at the University of Sassari.

Analysis of hotel groups

For the accomodation sector we analysed the characteristics of hotel groups. The *Associazione Italiana Confindustria Alberghi* placed emphasis on the need to appropriately consider the groups at the time of sample extraction. According to the statistical definition a hotel is a receptive public exercise, which provides accommodation, meals and any other ancillary services, rooms in one or more buildings or parts of buildings.

Although the single hotel associated with a single enterprise is one of the characteristics of the Italian economy, many hotels are part of a wider reference group, in *a soft way*, for example in the case of a joint promotion agreement, or in *a hard way*, when a property is owned by a chain. A hotel may depend on a group through franchising contracts, consortia or various types of agreements (purchase of goods or services, making strategies, online management, ...). In the case of franchising, a hotel is associated with a group as long as certain parameters of membership hard franchise or soft franchise are met. A special case is provided by large international hotel groups, i.e. those that own and/or manage more extra wide national groups (examples include Accor and Marriot groups).

Bearing in mind these differences, it was decided to carry out a thorough analysis of the 50 major hotel companies (in terms of number of rooms) in Italy in 2009 according to the Italian Annual report on Tourism (Mercury, 2010) and the ones in the ASIA 2008 archive. This record-linkage showed that 47 enterprises on 50 are registered in ASIA 2008[7]. Missing companies were listed in the commercial register in the first half of 2010 and originate from mergers and incorporations of other undertakings present in ASIA 2008. As shown in Table 6 of the 47 firms in ASIA 2008, 32 are classified in Division 55. Of the 29 companies included in Group 55.1 (Hotels and similar accommodations) 18 (62.1%) have more than 100 employees, while 100.0% of companies belonging to the Group 55.2 (Holiday and other short-stay accommodation) has more than 100 employees.

Table 6 - Summary of hotel chain according to Asia 2008

	Employees				
NACE (Rev. 2)	2 - 5	5 - 20	20 - 100	$\geq$ 100	Tot
47.71				1	1
55.10	2	2	7	18	29
55.20				3	3
70.10		1			1
70.22		1	1		2
73.11	1	1			2
73.20	1		1		2
79.12			1		1
79.90				1	1
82.99	1	2	2		5
Total	**5**	**7**	**12**	**23**	**47**

It needs to be stressed that 3 companies were classified in Division 70 (Activities of head offices; management consultancy activities), 4 in Division 73 (Advertising and market research), 2 in Division 79 (Travel agency, tour operator and other reservation service and related activities) and 5 in Division 82 (Office administrative, office support and other business support activities).

[7] Archive available at the time of designing was referred to the year 2008.

3.3 The summary of information needs

During the meetings with trade associations it emerged the demand of economic information on turnover with more details compared to the requirements of the European regulation. Regarding the economic activity data were required at least at the level of Groups of economic activity (3 digit). Moreover, for some sectors it was considered of relevant importance to obtain information on the dynamics of turnover for macro geographical area or for specific aspects of economic activity. A summary of the indicators of turnover of Sections, Divisions, Groups and Classes required by the regulation and by the associations surveyed is shown in Table 7.

Table 7 - Indices of turnover: survey of needs information

Sections	Divisions	Indexes required by Regulation	Indexes required by stakeholders
G	45	45; 45.2; (45 - 45.2)	45.1; 45.3; 45.4
H	49	49	49.1; 49.2; 49.31; 49.41
H	52	52	52.1; 52.2; 52.29
I	55	(55 + 56)	55.1; (55 - 55.1)
I	56		56.1; 56.2; 56.3

Informational needs were carefully evaluated during the phase of the sample design looking for the best compromise between the costs, the statistical burden and the demand for detailed information.

4. The design phase: sector analysis, variable description and the estimation methodology

The sampling design demanded an accurate analysis of the structural characteristics of economic sectors subject to investigation. In order to evaluate the composition of each division by number of companies and employees information contained in the database of the active enterprises in ASIA for year 2010 and annual statistical surveys on economic performance of industrial and services companies have been used. In particular the average size of enterprise, measured as ratio between number of employees and enterprises (**size**), and the percentage of employees for enterprises with more than 100 employees (**Conc**) have been calculated.

4.1 Structural characteristics of the sectors

4.1.1 Wholesale and retail trade and repair of motor vehicles and motorcycles - Division 45

The STS Regulation requires 3 indicators for Division 45: the total of the division, the total of Group 45.2 and net Division of 45.2 Group. Until fourth quarter of 2010 only the indicator for the Group 45.2 was produced.

A detailed description of the number of enterprises, employees and turnover for economic activity for the division is shown in Table 8. The division includes 4 Groups of economic activity, the first 3 refer to vehicles and the fourth includes all activities on motorcycles. The largest enterprises in terms of employees for enterprise (5.4) and percentage of employees for the biggest enterprises (13.9) belong to the Group 45.1, which at its core consists of 21,514 enterprises (17.8% of the total). The Group 45.2 employs the 50.7% of workers of the Division 45. The residual number of employees is referred respectively to the Groups 45.3 (14.8% of total employees) and 45.4 (4.6% of total employees).

Table 8 - Detailed structure of division 45 - NACE, Asia 2010

NACE	Economic Activities	Enterprises	Ent. %	Employees	Empl. %	Size	Conc
45.1	**Sale of motor vehicles**	**21,514**	**17.8**	**116,604**	**30.0**	**5.4**	**13.9**
45.11	Sale of cars and light motor vehicles	20,751	17.2	108,811	24.4	5.2	13.4
45.19	Sale of other motor vehicles	763	0.6	7,793	1.7	10.2	20.8
45.2*	**Maintenance and repair of motor vehicles**	**77,015**	**63.9**	**197,083**	**50.7**	**2.6**	**0.6**
45.3	**Sale of motor vehicle parts and accessories**	**15,295**	**12.7**	**57,546**	**14.8**	**3.8**	**5.5**
45.31	Wholesale trade of motor vehicle parts and accessories	7,831	6.5	37,544	8.4	4.8	7.0
45.32	Retail trade of motor vehicle parts and accessories	7,464	6.2	20,002	4.5	2.7	2.7
45.4	**Sale, maintenance and repair of motorcycles related parts and accessories**	**6,758**	**5.6**	**17,794**	**4.6**	**2.6**	**1.1**
45	**Wholesale and retail trade and repair of motor vehicles and motorcycles**	**120,582**	**100.0**	**389,028**	**100.0**	**3.7**	**4.7**

∗ Already published

4.1.2 Land transport and transport via pipelines - Division 49

The STS Regulation requires the turnover index for the total of the Division 49. The sector consists of 5 Groups of economic activity (Table 9).

In this division the Class 49.41 is the relevant one. In particular it represents the 57.7% of employees for about 78,000 enterprises (on 110,000 for the total division). Although the Group 49.4 is the one with the lower values for size and Conc compared to the other Groups.

For three Groups of economic activity (49.1, 49.2, 49.5) because of the low number of active enterprises in the reference population but of big dimension, in the sample all the enterprises are selected.

Table 9 - Detailed structure of division 49 - NACE (Rev.2), Asia 2010

NACE	Economic Activities	Enterprises	Ent. %	Employees	Empl. %	Size	Conc
49.1	**Passenger rail transport, interurban**	**11**	**0.0**	**46,699**	**8.4**	**4,245.4**	**99.6**
49.2	**Freight rail transport**	**14**	**0.0**	**1,090**	**0.2**	**77.9**	**62.6**
49.3	**Other passenger land transport**	**29,289**	**26.6**	**174,952**	**31.6**	**6.0**	**61.2**
49.31	Urban and suburban passenger land transport	1,635	1.5	99,274	17.9	60.7	86.2
49.32	Taxi operation	24,025	21.8	34,860	6.3	1.5	11.0
49.39	Other passenger land transport n.e.c.	3,629	3.3	40,818	7.4	11.2	43.3
49.4	**Freight transport by road and removal services**	**80,777**	**73.4**	**327,943**	**59.3**	**4.1**	**12.1**
49.41	Freight transport by road	77,663	70.5	318,996	57.7	4.1	12.4
49.42	Removal services	3,114	2.8	8,948	1.6	2.9	1.2
49.5	**Transport via pipeline**	**14**	**0.0**	**2,606**	**0.5**	**186.1**	**91.4**
49	**Land transport and transport via pipelines**	**110,105**	**100.0**	**553,290**	**100.0**	**5.0**	**35.5**

4.1.3 Warehousing and support activities for transportation - Division 52

The STS Regulation requires the turnover index for the total of the Division 52. The Division is characterised by two main Groups even if contains strongly differentiated economic realities. A detailed description of the economic activities is then given at 5-digit level (Table 10). According to ASIA in 2010 were approximately 22,000 enterprises operating in the sector of warehousing and logistics. Of these about 8,000 were of service activities incidental to land transportation (52.21) and about 7,000 other transportation support activities (52.29). The enterprises belonging to Service activities incidental to air transportation (52.23) are the biggest (70.1 employees for enterprises) and the 89.5% of employees works for enterprises with more than 100 employees.

Table 10 - Detailed structure of division 52 - NACE (Rev.2), Asia 2010

NACE	Economic Activities	Enterprises	Ent. %	Employees	Empl. %	Size	Conc
52.1	**Warehousing and storage**	**1,737**	**7.7**	**18,890**	**5.5**	**10.9**	**29.4**
52.2	**Support activities for transportation**	**20,914**	**92.3**	**321,900**	**94.5**	**15.4**	**55.5**
52.21	Service activities incidental to land transportation	8,381	37.0	83,701	24.6	10.0	62.0
52.22	Service activities incidental to water transportation	1,835	8.1	12,884 3.8	7.0	16.7	
52.23	Service activities incidental to air transportation	370	1.6	25,934	7.6	70.1	89.5
52.24	Cargo handling	3,548	15.7	125,815	36.9	35.5	59.9
52.29	Other transportation support activities	6,780	29.9	73,565	21.6	10.9	35.6
52	**Warehousing and support activities for transportation**	**22,651**	**100.0**	**340,790**	**100.0**	**15.0**	**54.1**

4.1.4 Accommodation and Food Service Activities - Section I

The STS Regulation requires an index of turnover for the entire Section I (Activities of accommodation services and restaurants). Given the importance of these activities in the Italian economy, the analysis has been carried out separately for Division 55 (Accomodation activities) and 56 (Food and beverage service activities).

A detailed description of the economic activities for the 55 Division is listed in Table 11. The Division 55 includes 4 Groups of economic activity. The most representative is the Group 55.1 with 55.0% of enterprises and 79.4% of employees. Moreover the size of these enterprises is the biggest (9 employees for enterprise) compare to the other Groups. Instead the 36.9% of employees for other accommodation works for enterprises with more than 100 of employees.

Table 11 - Detailed structure of Division 55 - NACE (Rev.2), Asia 2010

NACE	Economic Activities	Enterprises	Ent. %	Employees	Empl. %	Size	Conc
55.1	**Hotels and similar accommodation**	**24,667**	**55.0**	**221,717**	**79.4**	**9.0**	**15.3**
55.2	**Holiday and other short-stay accommodation**	**18,073**	**40.3**	**46,156**	**16.5**	**2.6**	**8.0**
55.3	**Camping grounds, recreational vehicle parks and trailer parks**	**1,646**	**3.7**	**9,095**	**3.3**	**5.5**	**5.7**
55.9	**Other accommodation**	**430**	**1.0**	**2,265**	**0.8**	**5.3**	**36.9**
55	**Accommodation**	**44,816**	**100.0**	**279,233**	**100.0**	**6.2**	**13.9**

A detailed description of the economic activities of 56 Division is listed in Table 12. The Division is mainly characterized by the two Groups 56.1 and 56.3. The first expresses the 53.1% of employees for about 130,000 enterprises, while the second one the 33.8% of employees with about 123,000 enterprises. The remaining 3,469 enterprises in Group 56.2 (Event catering and other food service activities) are characterised by the biggest size in the Division with the 79.7% of employees working for the enterprises with more than 100 of employees. For subsequent analysis we will indicate with "traditional food" the aggregation between the Group 56.1 and the Group 56.3 and simply with "catering" Group 56.2.

Table 12 - Detailed structure of Division 56 - NACE (Rev.2), Asia 2010

NACE	Economic Activities	Enterprises	Ent. %	Employees	Empl. %	Size	Conc
56.1	**Restaurants and mobile food service activities**	**129,715**	**50.5**	**507,302**	**53.1**	**3.9**	**4.1**
56.2	**Event catering and other food service activities**	**3,469**	**1.4**	**124,445**	**13.0**	**35.9**	**79.7**
56.21	Event catering activities	1,872	0.7	11,224	1.2	6.0	13.9
56.29	Other food service activities	1,597	0.6	113,220	11.9	70.9	86.2
56.3	**Beverage serving activities**	**123,485**	**48.1**	**322,834**	**33.8**	**2.6**	**4.1**
56	**Food and beverage service activities**	**256,669**	**100.0**	**954,580**	**100.0**	**3.7**	**13.9**

4.2 Characteristics of the variables

For all economic sectors covered by the survey, the quarterly survey on turnover of services sector asks for two types of information: the total turnover and the average number of employees in the quarter.

During the recent reorganization of the survey (Bacchini et al. 2012) the definition of the two aggregates has been harmonised with the definitions used for other surveys in the Institute and the ones adopted in the STS regulation.

In coherence with the results from the meetings with the associations of categories, it was decided to extend the set of variables for 55.1 Group and to include the transport mode between the characteristics of enterprises in Class 49.41.

Concerning Group 55.1, the turnover for the services of accommodation and food & beverages are defined as:

The **turnover for accommodation services** includes *the turnover of services only overnight stay excluding breakfast. The value of the breakfast, which is not shown on the invoice as a separate item, can be determined in a conventional way, whereas a fixed fee amount for each overnight stay or a percentage of the price of the same*;

The **turnover for food & beverages** includes *turnover to the administration of food and beverages including breakfast (whose value is to be calculated in the manner described above), the minibar, room service, bar, restaurant, wine cellar, banquets, etc., even if related to customers seated*.

Concerning the transport modes has been classified according to 10 possible items: car transporter, combined, containers, refrigerated, not refrigerated food, oversize load, hydraulic binders, dangerous goods, garbage, other.

4.3 The estimation methodology

The launch of the new survey has led to the analysis of which estimator should be used for the calculation of the indices.

For the sector already disseminated, the index number is compiled using the quarterly year to year growth rate of the observed turnover calculated on respondents that coexist in the current quarter and the same period of the previous year (estimator for variation). This methodology is characterized by its operational simplicity but, at the same time presents some limits.

Particularly, the treatment of non-response does not occur within a traditional correction of the expansion factor. Moreover it is not possible to derive an estimation for the total turnover for each quarter.

The introduction of the new surveys supported a supplement investigation on the estimation's characteristic. By means of a simulation experiment we studied the performance of the traditional estimator for expansion (Horwitz-Thompson estimator, Cochran 1977) and of the estimator for variation.

Both estimators perform in an optimal way when the units are all respondent and there is a low degree of persistence of the indices along the time. When the number of nonrespondents increases and we are in presence of a period of growth, the estimator for variation exhibits a biased behaviour.

For these reasons the estimates of the turnover indices for the new sectors are developed using the traditional Horwitz-Thompson estimator. Inside this framework, on the occasion of the change of base year [8] a calibration estimator has been introduced correcting the initial sample weights using an auxiliary variable to account for non-response (Bacchini et al. 2014).

5. The data collection tools

The needs from stakeholders have been taken into account in both the questionnaire design and in the implementation for new capabilities of the information system used for data collection.

5.1 The questionnaire

The questionnaire for the services turnover survey is organised in four different sections regarding the information about the enterprise; the economic activity; data for the current period and data for the previous periods. Moreover to take into account the needs from the stakeholders some additional information are required for the enterprises classified as land transport of goods (NACE 49.41) and accommodation (NACE 55.1). For the former data are gathered for the main transportation while for the latter the number of rooms, the number of opening days in the quarter and the split of turnover between accomodation and food and beverages services.

5.2 The information system updating

In order to manage the additional information requested by trade associations for the class land transport of goods (class 49.41 of NACE) and accommodation (Group 55.1 of NACE), it was necessary to update the information system (for more details see Bacchini et al., 2012). The update affected the website, the tables and the management procedures used for dealing with information on the enterprise and on quarterly data on turnover.

5.2.1 The website

As consequence of both the re-engineering process of service sector survey and of new data collection as required by associations for land transport of goods (NACE 49.41) and

[8] The indices in base 2010=100 have been released on 5th June 2013

accommodation (NACE 55.1), at February 2011 a new website *(https://indata.istat.it/fas)* was put online for data collection[9]. Moreover were upgraded the real-time acquisition procedure of data collected via web and the procedure for entering data received by fax .

5.2.2 The database

The operation for the management of the additional enterprises demographic information has been realized in two phases. In the first one new attributes were added at tables on external database server:

- *TRASP_PRINC* to save the information about the main transportation;
- *VAR_TRASP_PRINC* to allow the communication of a new value of main transportation;
- *NUM_CAMERE* to save the information about the number of rooms;
- *VAR_NUM_CAMERE* to allow the communication of a new value of number of rooms.

In second phase internal database and communication procedures between external and internal database server were updated. In this case, instead of changing the structure of demographic table a new one was created in the internal database scheme. In addition, the management software was modified to allow viewing, modification and deletion of new fields (in the Appendix, Figure 10 e Figure 11).

For the Group 55.1 it was decided to leave unchanged the existing data table used to collect information on total turnover and employees and create a new table *dati_alberghi* to gather the information, for each quarter, related to part of turnover attributable to accommodation services and food & beverage services. Therefore, it was created a procedure *(aggiorna_dati_alberghi_da_web)* to transfer the data obtained via the web to internal database. Correspondingly, the management software was modified for handling quarterly data relating to turnover for accommodation and food & beverage (in the Appendix, Figure 12).

6. The sample selection

Following the meetings with trade associations, it was decided to consider as estimation domains the Groups of economic activity (3 digits of NACE Rev 2 classification). Only for some sectors the 4 digits were used for economic activities and in particular for the Classes 49.31, 49.41, 52.21 and 52.29.

For 55 and 56 Divisions was also taken into consideration the geographical distribution (Northwest, Northeast, Middle, South and Islands).

The stratification variables are the economic activity together with classes of employees. In particular, the enterprises with more 100 employees (according to ASIA database) are a self-representative stratum and 3 classes of employees (2-4, 5-19, 20-99) are considered. For Division 52 and Groups 45.1, 52.1, 49.1, 49.2 the threshold is equal to 5 employees.

Taking into account the hypothesis about domains of estimation and stratifications, optimal allocation of the sample was created using both information on the enterprises in the ASIA database and structural business statistics referred to year 2010. It has been used the algorithm Bethel at a level of 3.0%[10], implemented in Mauss version developed in R (Di Giuseppe et al., 2010). The sample size obtained are shown in Table 13.

9 We would like to thank Franco Garritano for the improvements of the previous release

10 In the presence of the domain for geographical breakdown the error was set at 5.0%

Table 13 - Sample size for new surveys

Domain	Economic Activities	Sample size
45.1	Sale of motor vehicles	348
45.3	Sale of motor vehicle parts and accessories	485
45.4	Sale, maintenance and repair of motorcycles related parts and accessories	476
Total Division 45	**Wholesale and retail trade and repair of motorcycles**	**1,309**
49.1	Passenger rail transport, interurban	8
49.2	Freight rail transport	9
49.31	Urban and suburban passenger land transport	129
49.41	Freight transport by road	738
49.5	Transport via pipeline	4
49a = (49.32 + 49.39 + 49.42)	Other	242
Total Division 49	**Land transport and transport via pipelines**	**1,130**
52.1	Warehousing and storage	236
52.21	Service activities incidental to land transportation	199
52.29	Other transportation support activities	291
52a = (52.22 + 52.23 + 52.24)	Other	648
Total Division 52	**Warehousing and support activities for transportation**	**1,374**
55.1	Hotels and similar accommodation	561
55a = (55.2 + 55.3 + 55.9)	Other	531
Total Division 55	**Accommodation**	**1,092**
56.1	Restaurants and mobile food service activities	570
56.2	Event catering and other food service activities	259
56.3	Beverage serving activities	471
Total Division 56	**Food and beverage service activities**	**1,300**
Total Section I	**Accommodation and food service activities**	**2,392**
Total		**6,205**

The determination of domains for 55 Division has highlighted the importance of the Hotels compared to other accommodations: for geographical distribution were regarded domains 55.1 (Hotels and similar accommodation) and 55a (55.2, Holiday and other short-stay accommodation, 55.3, Camping grounds, recreational vehicle parks and trailer parks, and 55.9, Other accommodation).

In the restaurant industry, the choice of the domains has been done according to the economic differences between the *traditional restaurants* (56.1 and 56.3) and the *Event catering* (56.2). Only for the traditional restaurants the geographical variable has contributed to the domain definition.

The 1,309 companies sampled for the 45 Division represent a share of turnover of 43.3% of the national total of the sector; the 1,130 enterprises sampled in 49 Division accounted for 44.5% of turnover; the 738 companies sampled in 49.41 Class represent the 25.6% of the total turnover in the Class and the 16.9% of the Division; the 1,374 companies sampled in Division 52 represent 62.7% of total national revenues by Division; the coverage for the 1,092 enterprises sampled for the Division 55, is equal to 25.9%; the 561 sampled enterprises on Group 55.1 account for 20.1% of total sector national; the 1,300 enterprises sampled 56 Division accounted for 21.1% of the national total.

Table 14 - Sample size by geografic areas for accomodation and food and beverage service activities

Domain by geografic areas	Economic Activities	Sample size
55.1 North-West	Hotels and similar accommodation	122
55.1 North-East	Hotels and similar accommodation	139
55.1 Middle	Hotels and similar accommodation	142
55.1 South and Islands	Hotels and similar accommodation	158
55a North-West	Other	68
55a North-East	Other	150
55a Middle	Other	140
55a South and Islands	Other	173
Total Division 55	**Accommodation**	**1,092**
56.1 North-West	Restaurants and mobile food service activities	132
56.1 North-East	Restaurants and mobile food service activities	125
56.1 Middle	Restaurants and mobile food service activities	145
56.1 South and Islands	Restaurants and mobile food service activities	168
56.2 Italy	Event catering and other food service activities	259
56.3 North-West	Beverage serving activities	74
56.3 North-East	Beverage serving activities	119
56.3 Middle	Beverage serving activities	129
56.3 South and Islands	Beverage serving activities	149
Total Division 56	**Food and beverage service activities**	**1,300**
Total Section I	**Accommodation and food service activities**	**2,392**

7. The data collection phase

The surveys for these economic sectors were launched in March 2011 by sending by mail the cover letter, the questionnaire and the instructions to the 6,205 enterprises in the sample.

The personal information for enterprises, necessary for the postal sending, were created using the ones contained in the ASIA register. For a limited number of enterprises, the mailing failed because of cessation of activities (for bankruptcy or liquidation, merger, lease or transfer of all or of business interested in detection) or list errors (incorrect address). For these enterprises, a further control on the activity state has been carried out through administrative sources (in particular by *Telemaco*[11]) or searching via web.

The final size of the first sample retrieved also takes into account the changes in NACE activities and transformations (mergers, incorporations, new born) that companies have made. In the Table 15 we report the number and characteristics of non-contact.

The percentage of sampled firms lists was among the 91.6% of the survey on the warehousing and support activities for transportation (NACE Division 52), and 93.5% of the survey on land transport and transport via pipelines (NACE Division 49). The negative peak regarding Groups is recorded for warehousing and storage (NACE Group 52.1) with 88.1% coverage.

[11] The database provided by Unioncamere (Unione italiana delle Camere di commercio, industria, artigianato e agricoltura, Italian Union of Chambers of Commerce, Industry, Handicraft and Agricolture), the public body that unites and represents istitutionally the Italian chambers

Table 15 - Number of enterprises for new surveys and characteristics of non-contact

NACE (Rev. 2)	Theoretical num.	Cease	Undeliverable mail	Final num.	%
45.1	348	6	8	334	96.0
45.3	485	14	11	443	91.3
45.4	476	16	18	443	93.1
Total Division 45	**1,309**	**36**	**37**	**1,220**	**93.2**
49.1	8	0	0	8	100.0
49.2	9	0	0	9	100.0
49.31	129	4	3	118	91.5
49.41	738	18	26	689	93.4
49.5	4	0	0	4	100.0
49a	242	6	3	229	94.7
Total Division 49	**1,130**	**28**	**32**	**1,057**	**93.5**
52.1	236	13	9	208	88.1
52.21	199	10	7	181	91.0
52.29	291	12	5	278	95.5
52a	648	29	16	591	91.2
Total Division 52	**1,374**	**64**	**37**	**1,258**	**91.6**
55.1	561	25	5	534	95.2
55a	531	26	17	486	91.5
Total Division 55	**1,092**	**51**	**22**	**1,020**	**93.4**
56.1	570	16	23	535	93.9
56.2	259	7	10	240	92.7
56.3	471	19	21	430	91.3
Total Division 56	**1,300**	**42**	**54**	**1,205**	**92.7**
Total I	**2,392**	**93**	**76**	**2,225**	**93.0**

7.1 System of data capturing

The quarterly survey on turnover of services includes two ways of data return by companies:

- via fax, using dedicated fax server;
- via web, through the indata website.

The launch of the new surveys was associated with the release of the new website for data capturing. It was then possible to measure the impact of the new site by observing the responses of both enterprises belonging to the sample before 2011 (sectors already monitored) and the new ones (for the new economic sectors together with the enterprises that are annually rotated after the refreshment operation).

For the economic activities already monitored (Table 16) an increase is registered in web responses by 4.5 percentage points between the 2nd and the 3rd quarter 2010 (start time of the reminder procedure for businesses through fax communication) and 9.9 percentage points between the fourth quarter of 2010 and the 1st quarter 2011 (launch of the new site). If we consider the average of the responses arrived via web of 2010 and 2011, the increase is even 18.2 points. In 2012 the increasing trend of the response via web has continued to grow.

Table 16 - Type of data capturing used by enterprises extracted before 2011 (services sectors already published)

Type	Send to quarter %												Average per year %		
	2010				2011				2012						
	I	II	III	IV	I	II	III	IV	I	II	III	IV	2010	2011	2012
Fax	61.5	61.4	56.1	51.6	41.7	39.7	38.8	37.3	37.0	36.3	35.2	34.3	57.7	39.4	35.7
Web	38.5	38.6	43.9	48.4	58.3	60.3	61.2	62.7	63.0	63.7	64.8	65.7	42.3	60.6	64.3

The new enterprises, those one selected in the sample for the first time in 2011, choose web as the main tools to provide data (Table 17). Also for this subgroup the web percentage ratio increased in the last years.

Table 17 - Type of data capturing used by enterprises extracted in 2011 (all services sectors)

Type	Send to quarter %												Average per year %		
	2010				2011				2012						
	I	II	III	IV	I	II	III	IV	I	II	III	IV	2010	2011	2012
Fax	46.6	45.9	45.6	45.3	46.5	42.3	39.7	37.3	38.8	38.5	37.7	37.0	45.8	41.5	38.0
Web	53.4	54.1	54.4	54.7	53.5	57.7	60.3	62.7	61.2	61.5	62.3	63.0	54.2	58.5	62.0

Overall, the introduction of the new web portal for data capturing has significantly increased the percentage of firms responding mode via web.

7.2 Response rate and respondents

If you look at the 2010-2012 period, the average enterprises collaboration has increased, whether measured in terms of turnover (source Istat structural data archives and Asia) or measured in terms of number of enterprises (Table 18).

Table 18 - Response rate and coverage of turnover - average per year

NACE (Rev. 2)	Response rate			Coverage of turnover		
	Average 2010	Average 2011	Average 2012	Average 2010	Average 2011	Average 2012
45	60.6	75.8	77.1	87.6	92.5	91.7
49	34.7	51.8	57.0	75.2	82.4	86.7
52	44.9	60.4	63.3	74.4	86.9	86.6
I	34.4	53.8	55.8	70.4	85.0	85.0
55	36.8	50.8	59.0	61.7	77.8	76.7
56	32.3	57.1	53.0	74.4	88.5	88.8

With regard to the variables inserted specifically for some economic activities, 245 of 442 respondents belonging to the sample enterprises of companies selected for the road freight transport have compiled the prevailing transport section (see Table 19) and in 197 cases a prevailing mode of transportation has not been indicated.

Table 19 - Respondents by type of transport prevailing

Transport prevailing	Number of enterprises
Transportation not indicated	197
Car transporter	7
Combined	17
Container	11
Refrigerated	35
Food not refrigerated	10
Oversize load	4
Hydraulic binders	2
Dangerous goods	20
Garbage	10
Other	129
Total	**442**

Regarding accomodation services, 151 of 203 enterprises respondents in the sample for the hotel sector have provided the required turnover data split, 86 the number of rooms (worth about 25,100 units) and 127 the number of opening days. If we look at the breakdown by geographical area (Table 20), the lowest response rates is observed for firms in the South and Islands.

Table 20 - Percentages of the collaborations of the hotel enterprises by geographical areas

Geografic areas	Coverage of turnover		
	2010	2011	2012
North-West	53.3	64.5	64.0
North-East	47.4	66.3	66.1
Middle	39.3	57.1	56.1
South and Islands	34.3	54.5	53.1

8. Dissemination and analysis of the new indicators

The data collection for the new surveys started with reference to the first quarter in 2010. The new indicators have been released for the first time on the 27th of March 2012 (Istat, *Nuovi indicatori del fatturato dei servizi*, Il Sole 24ore) with reference of the Groups of Division 45 (Wholesale and retail trade and repair of motor vehicles and motorcycles) never surveyed before (Groups 45.1, 45.3 e 45.4) and the Divisions 49 (Land transport and transport via pipelines), 52 (Warehousing and support activities for transportation), 55 (Accomodation) and 56 (Food and beverage service activities). After that, the quarterly indices for turnover for these sectors have been regularly published, for each quarter, at approximately 60 days from the reference period, as required by the STS regulation. For the period I.2010 - I.2014 the year to year growth rate are reported for the Division 45 (Figure 1), the Division 49 (Figure 2), the Division 52 (Figure 3), the Division 55 (Figure 4) and the Division 56 (Figure 5) for Germany, France, Italy and Spain.

The international comparison illustrates the main characteristics of these sectors during the most recent economic crisis for which Italy is still not out. All of them exhibits a clearly decreasing pattern with a throat around the end of 2012. However the intensity of the recession depends from the countries and sectors. The mainly amplitude of the recession has been registered for the sector of *Wholesale and retail trade and repair of motor vehicles and motorcycles* according to the well known contraction of the motor vehicles market. Italy and Spain recorded the lowest rate during the 2012 (respectively -17% and -20%) but the value for the I quarter of 2014 is positive for all the countries.

The intensity of the recession has been less intensive in the other sectors. The indices related to the *Land transport and transport via pipelines* Division show the peculiarity of the contraction for Spain while the indices for the *Warehousing and support activities for transportation* Division illustrated the comovements between the countries with a slight improvements in the growth rate starting from the first quarter of 2013.

The indices for the *Accommodation and Food Service Activities* share a similar behaviour with the trough in the first quarter of 2013 for all countries. Data in the first quarter of 2014 are positive for all countries but not for France.

With the release of data for these new sectors the coverage of the turnover indices has increased to the 84.9% in terms of Structural Business Statistics weights. In such way an index of turnover for the service sector has been released. However, as stressed before, in the last months Istat has completed the compilation of the indices for all the sectors required by the STS regulation. The total indices for services has been released in June 2014.

Figure 1 - Quarterly Index of Services Turnover: Wholesale and retail trade and repair of motor vehicles and motorcycles (Germany, France, Italy and Spain, 2011-2014 (IQ), Changes on the same quarter of the previous year)

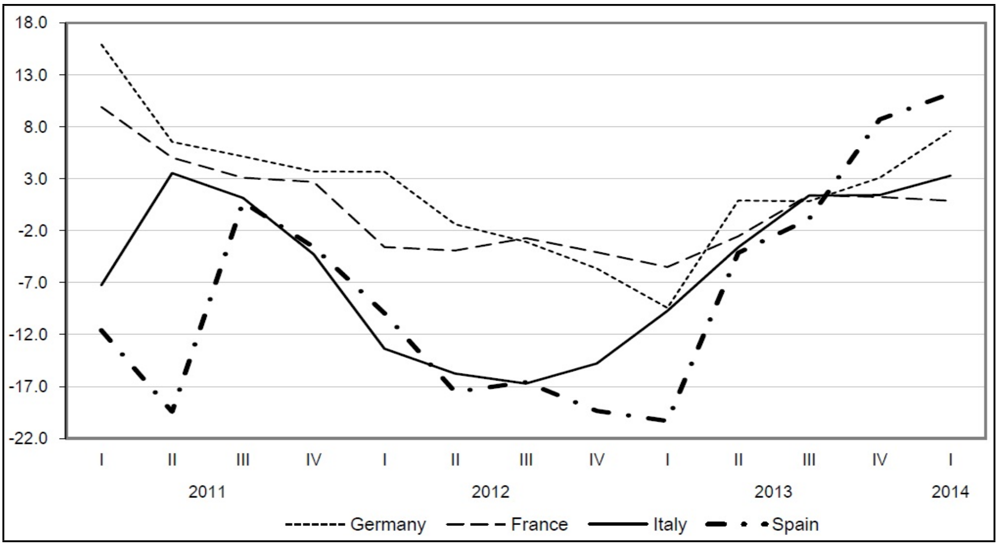


Figure 2 - Quarterly Index of Services Turnover: Land transport and transport via pipelines (Germany, France, Italy and Spain, 2011-2014 (IQ), Changes on the same quarter of the previous year)

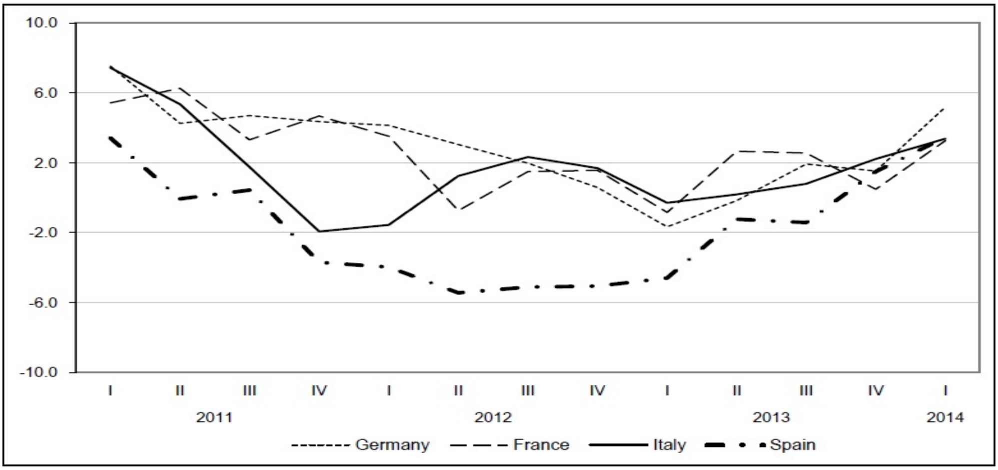


Figure 3 - Quarterly Index of Services Turnover: Warehousing and support activities for transportation (Germany, France, Italy and Spain, 2011-2014 (IQ), Changes on the same quarter of the previous year)

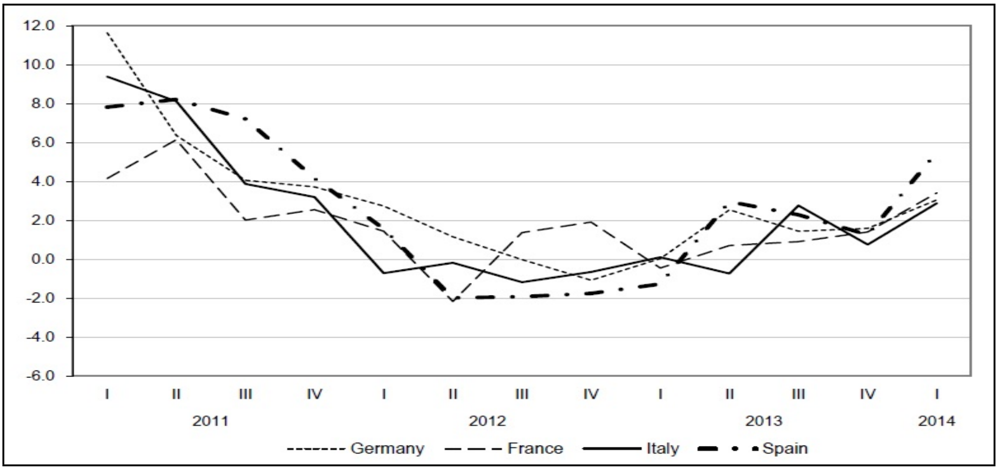


Figure 4 - Quarterly Index of Services Turnover: Accommodation (Germany, France, Italy and Spain, 2011-2014 (IQ), Changes on the same quarter of the previous year)

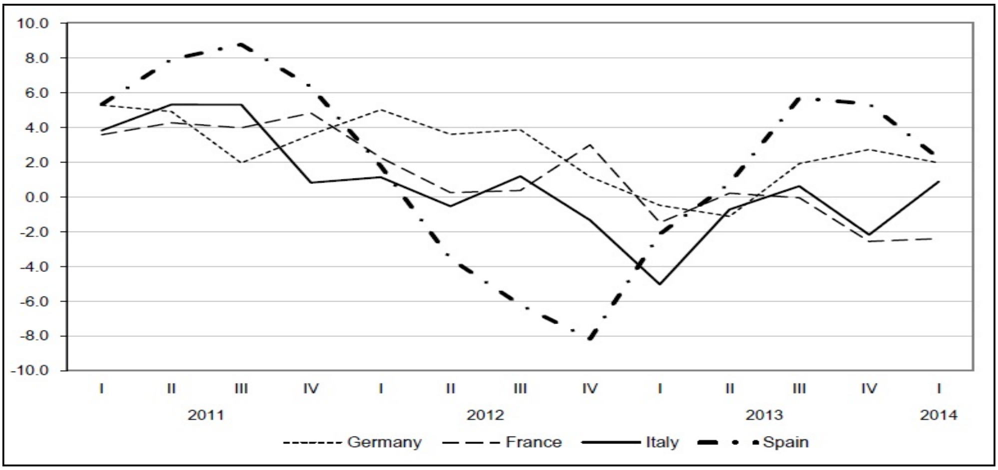
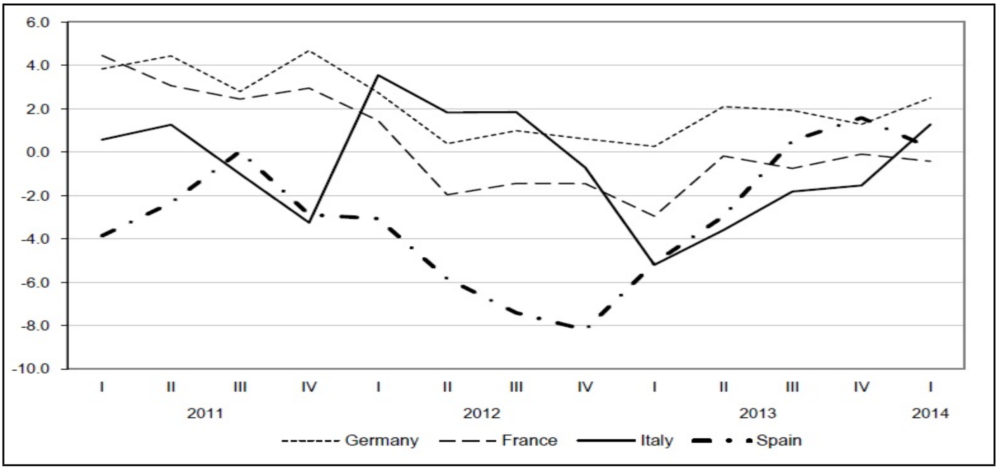


Figure 5 - Quarterly Index of Services Turnover: Food and beverage service activities (Germany, France, Italy and Spain, 2011-2014 (IQ), Changes on the same quarter of the previous year)



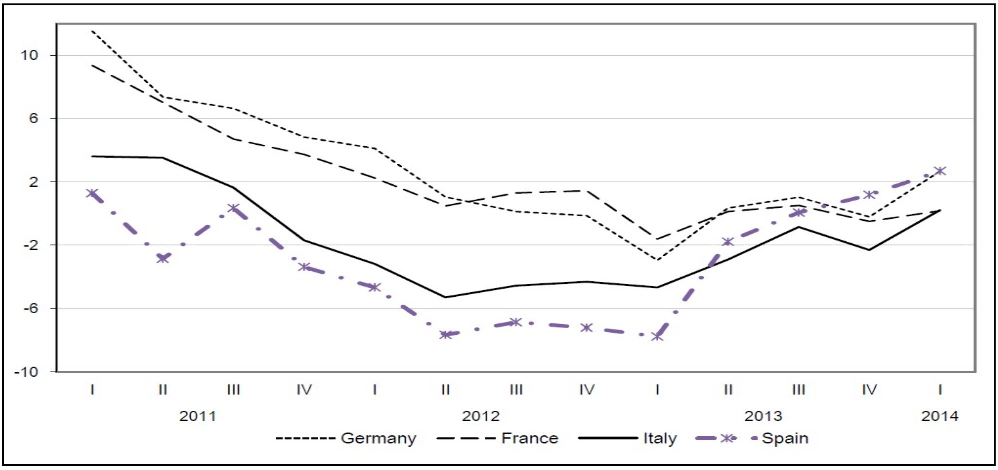
The pictures of the quarterly total index of Services Turnover (Figure 6) support the differences in the business cycle between the central European countries (France and Germany) and the Mediterranean countries (Italy and Spain) that exhibit a deeper contraction.

For all countries the minimum has been reached at the beginning of 2013. Particularly the last data (I quarter 2014) are positive for all countries.

To look at the synchronization of the behaviour of the indexes in the period 2010-2014 (IQ) we have considered the correlation between the year to year growth rate for the four countries. After calculating the average of the correlation between one country with the other three, the highest value of the correlation is reported for Italy (0.79) followed by Germany (0.76) and France (0.68). The minimum is recorded for Spain (0.49).

Moreover, the synchronization for the index of the Service turnover is lower compared to that one for the industrial turnover. In the same period the average of the correlation for the four countries spans from 0.90 (France) to 0.94 (Germany) while Italy and Spain shares the same level (0.93).

Figure 6 - Quarterly Index of Services Turnover: Total activities (Germany, France, Italy and Spain, 2011-2014 (IQ), Changes on the same quarter of the previous year)



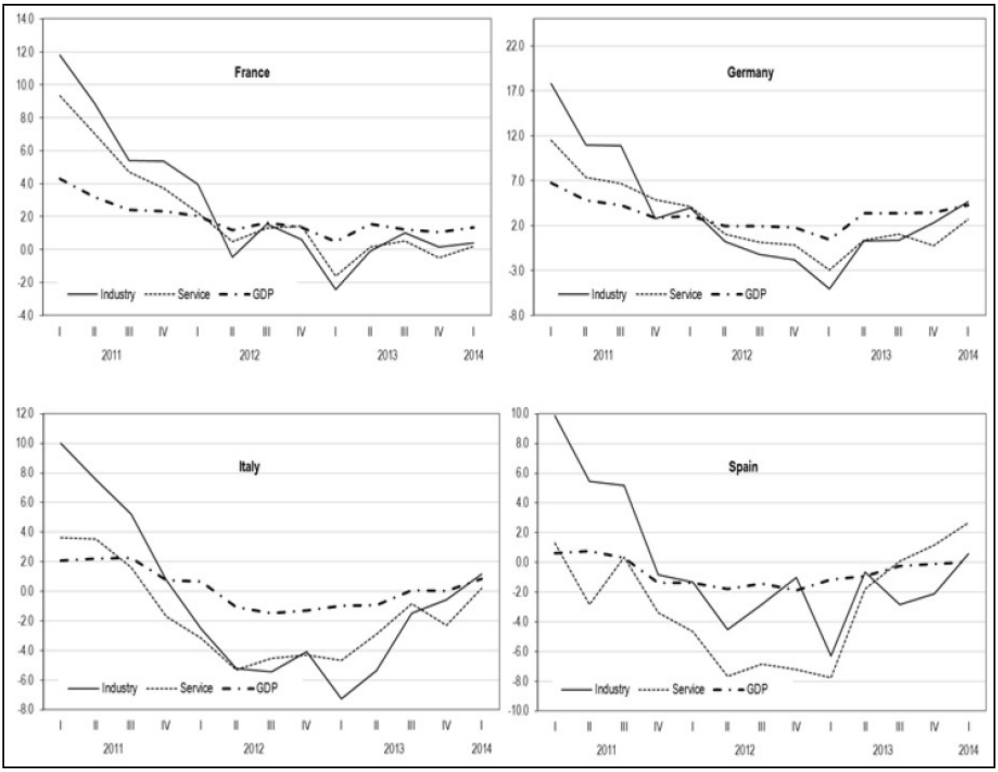
This evidence is supported by the comparison (Figure 7). For each country, of the year to year growth rate of the quarterly index of Service turnover, industrial turnover and nominal GDP over the period 2010-2014 (IQ).

Spain is the only country with a moderate similitude between the index of Service and Industrial turnover. Three main findings emerges from the comparison

- for all countries the year to year growth rate of the turnover indices fluctuate much more than that one of the nominal GDP. Particularly the volatile of the service sector is in line with the industrial' one. However during the crisis the distance from the indices of turnover and nominal GDP is higher for Italy and Spain.
- all indices show a clear business cycle behaviour with a trough in the first quarter of 2013

- data for the indices of turnover for France are not significative positive in the first quarter of 2014 compared to the other countries

Figure 7 - Quarterly Index of Services Turnover, quarterly Index of industrial turnover, GDP at nominal value (Germany, France, Italy and Spain, 2011-2014 (IQ), Changes on the same quarter of the previous year)



9. Conclusive remarks

The release of the new index for the entire service sector represents a big step forward in the coverage of short term indicators. Starting from the press release of June 2014 the number of indices and coverage are fully compliant with STS regulation. The total index for Service turnover as well as the indices for all Divisions will be published currently each quarter at 60 days from the reference quarter.

More importantly, these results have been reached by means of a standardisation framework in the production process. This has been the case, for example, for the determination of the sample size with the generalized software Mauss-R.

However, many issues must be followed up over the next few months. Firstly, a back-calculation of the series from 2000 is required, at least for the total index. In this way it will become more feasible to provide also seasonally adjusted data to detect the movements of the index with the previous quarter.

Secondly, economic analysis for the new sectors and its relation with the industrial sector and GDP should be investigated in order to improve the measure of the services direct contribution to economic growth (Kox, H. and L. Rubalcaba (2007)).

Thirdly, a measure of a production index should be derived to complete the set of Services Short-term indicators. Eurostat has built up a task-force on this topic.

Finally, we conclude that in the near future these indices will be useful in investigating also the indirect contribution of the services to growth (Evangelista et al., 2013) and in exploring their interrelation with the manufacturing industry. A more integrated analysis of the economic system behind the traditional separation between the economic sectors will be a challenge for the future.

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APPENDIX

Figure 8 - GSBPM: phases and sub-phases updated for the re-engineering of service turnover survey

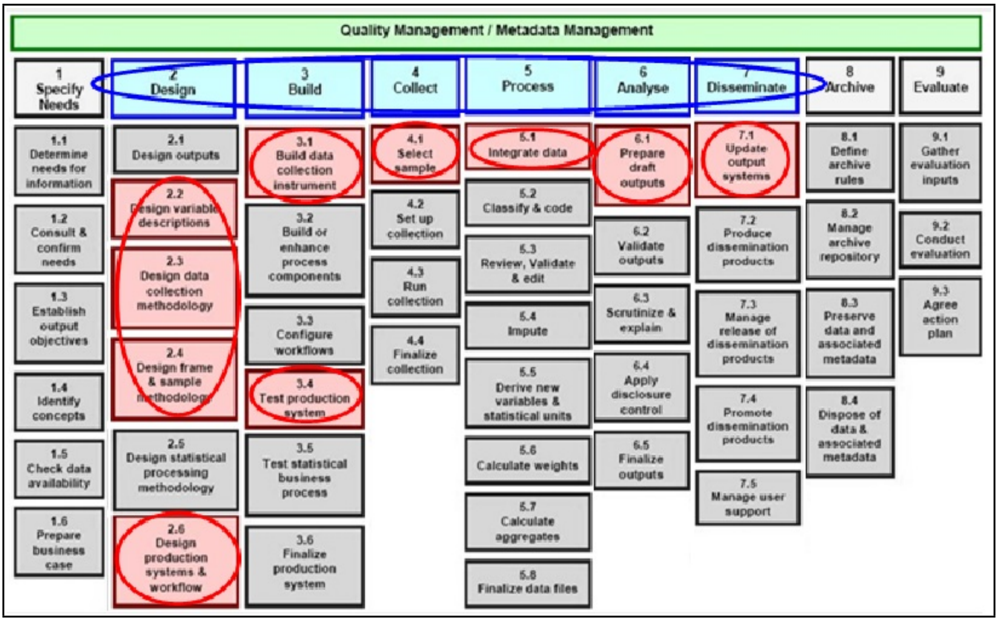

Figure 9 - GSBPM: phases and sub-phases updated for launch of service turnover survey for the new surveys

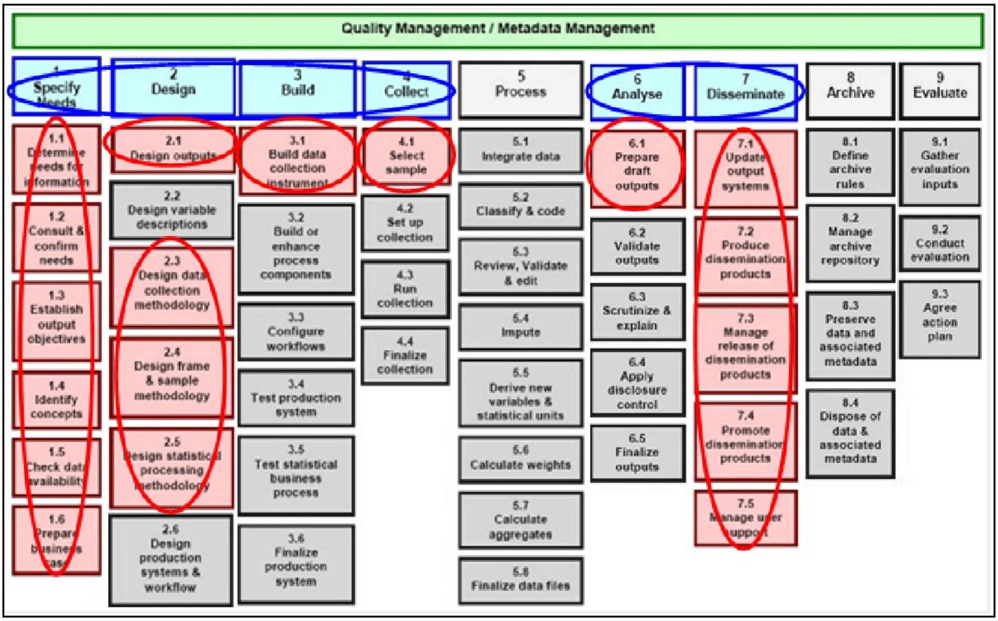

Figure 10 - Demographic data input frame for Freight Transport by road(49.41)

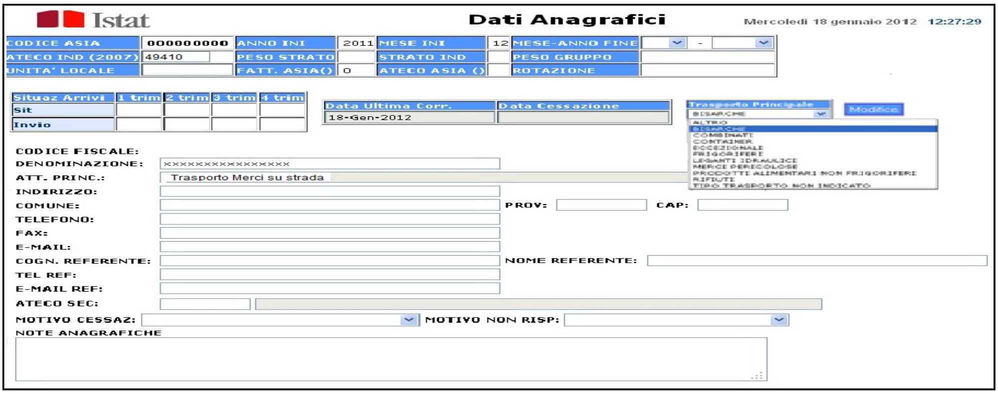

Figure 11 - Demographic data input frame for Hotels (55.1)

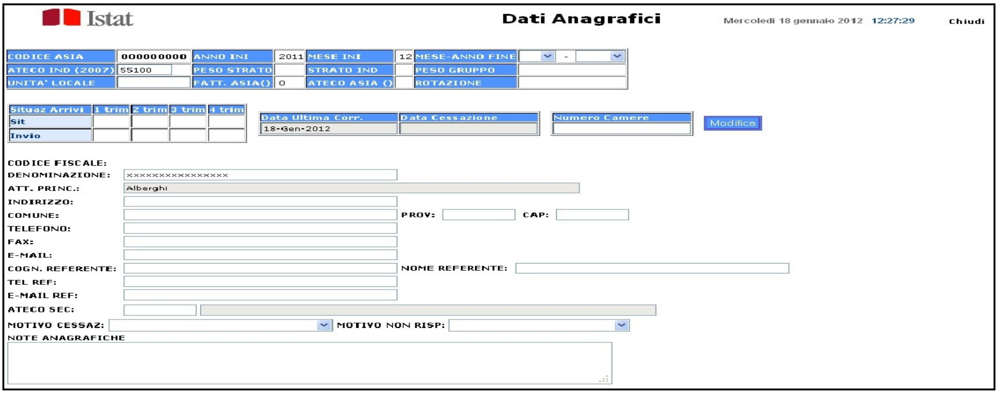

Figure 12 - Data input frame for Hotels (55.1)