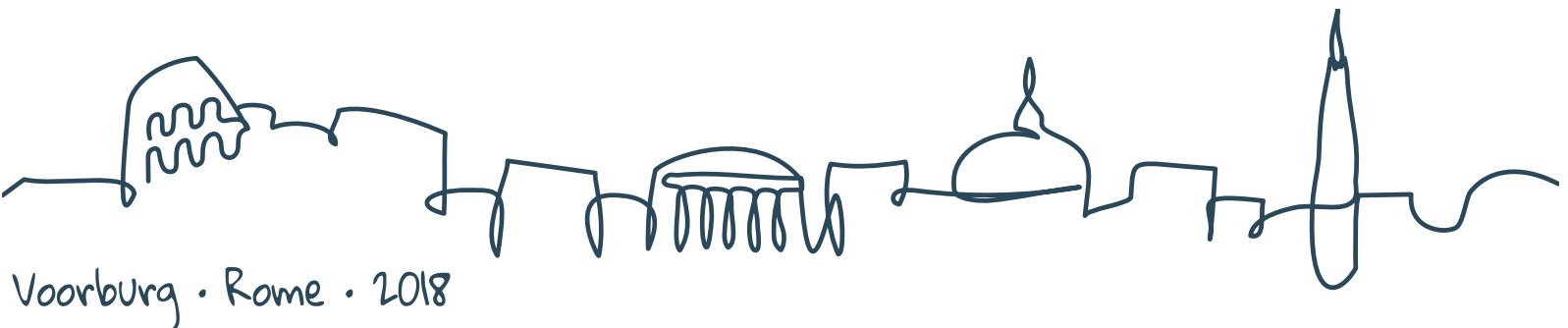# Session: Data processing, hosting and related activities (ISIC 6311)

Turnover/Output, basic economic statistics

Ramón Bravo Zepeda
Instituto Nacional de Estadística y Geografía (INEGI)
México

Voorburg · Rome · 2018

2

The 33ᵗʰ meeting of the Voorburg Group on Service Statistics
Session: Data processing, hosting and related activities (ISIC 6311)

VOORBURG
GROUP

ROME
2018

INTRODUCTION

The technical definition[1] of *data processing services*, can refer to the use of automated methods to process commercial data. Typically, activities to process large volumes of similar information and data. For example: stock updates applied to an inventory, banking transactions applied to account and customer master files, booking and ticketing transactions to an airline's reservation system, billing for utility services, etc.

In recent years, data-processing activities have not only been growing, but have become more complex in their operation and scope; today, processing are involved in practically any economic activity.

The growth of data processing as well as the diversity of products that it generates, make that the economic measurement of this industry be highly complex, for example, the identification of companies or establishments and economic classification, among others related topics.

In the following chapters, is intended to give an overview of turnover/output in data processing activities in Mexico, from the perspective of basic statistics (sample surveys and census); as well as some aspect related to Cloud Computing Services.

---

[1] http://laimportaciadelprocesamientodedatos.blogspot.com/

3

The 33th meeting of the Voorburg Group on Service Statistics
Session: Data processing, hosting and related activities (ISIC 6311)

VOORBURG
GROUP

ROME
2018

1.- Descriptions and characteristics of the industry

1.1.- Definition of the service and classification issues

According to the North American Industry Classification System, NAICS Mexico 2013, *Electronic data processing, hosting, and other related services[2]*, comprises establishments primarily engaged in providing electronic processing information, hosting and other related services, such as processing of non-bank credit cards, virtual stores, reservation services, access to software as an application that is offered on shared or dedicated servers, time-share mainframe facilities; hosting of web pages and applications; real-time streaming of audio and video data (streaming), microfilming and optical scanning services.

Table 1.- Equivalence between NAICS and ISIC for *Data processing, hosting and related activities*

ISIC Rev. 4	Title
Section J	Information and communication
Division 63	Information service activities
Group 631	Data processing, hosting and related activities; web portals
Class 6311 Class 6312	Data processing, hosting and related activities Web portals
NAICS Mexico 2013	**Title**
Sector 51	Mass media information
Subsector 518	Electronic data processing, hosting, and other related services
4-digits code 5182	Electronic data processing, hosting, and other related services
6-digits code 518210	Electronic data processing, hosting, and other related services

Perhaps the nature of electronic data processing and the large number of activities involved, cause that the economic classification is not pure, and some components of the processing are classified in different sectors or divisions; this peculiarity of electronic processing makes it difficult to identify and classify correctly the companies that offer these services.

---

[2] INEGI/NAICS Mexico 2013, 518210 Electronic data processing, hosting, and other related services.

In Mexico, it is through Economic Censuses program that economic classification of companies is obtained, then this information is integrated in to the Business Register[3] and subsequently is the sample frame for the selection of the surveys; in this process, company's classification could be upgraded, especially in the case of service activities, such as electronic data processing.

1.2.- Market conditions and constrains

According to Economic Censuses[4], electronic data processing industry is not significantly large, in comparison with the size of the sector, for example, in a number of companies represents 3.2% of the total, in persons employed is 5% and in terms of incomes, it is about 1.3%. In average, every establishment employs 48 persons.

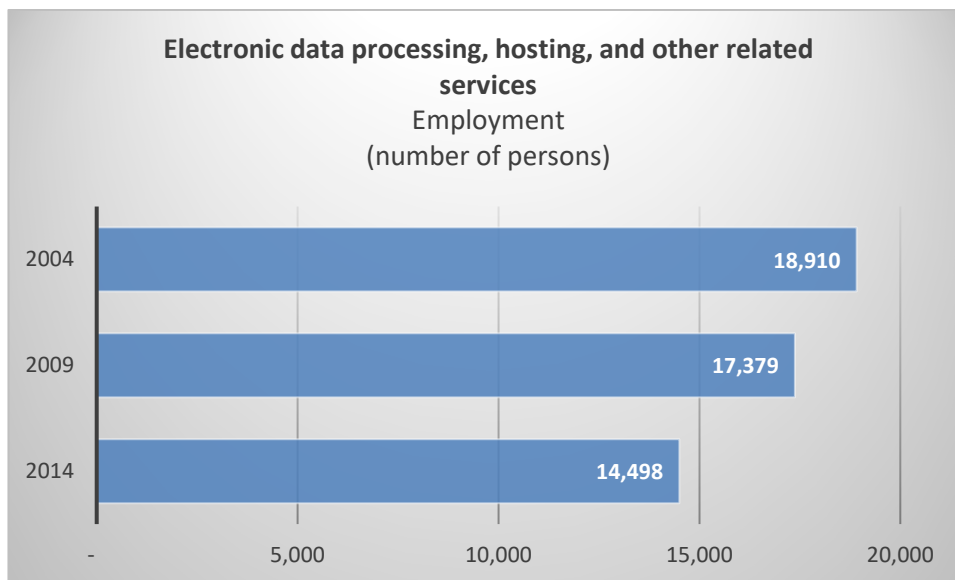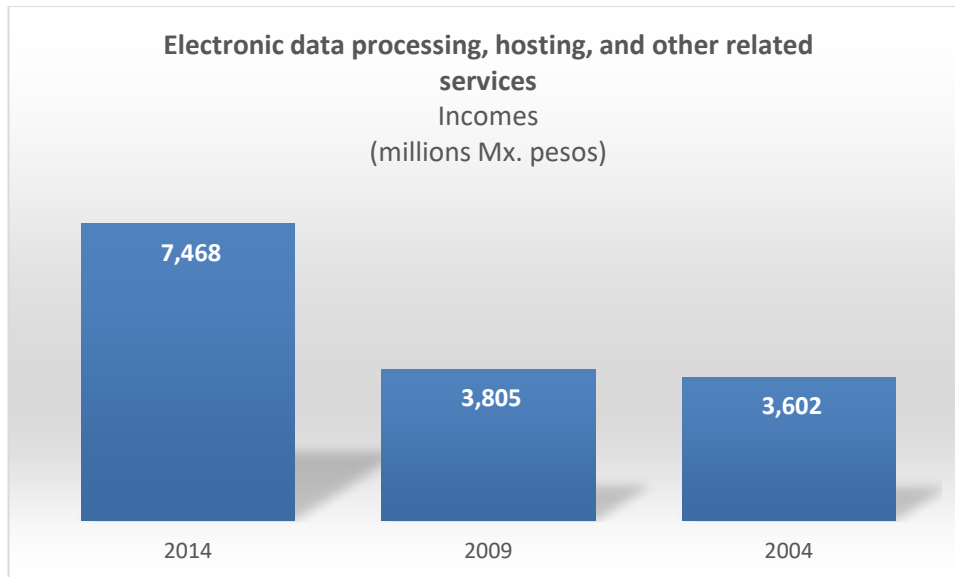**Table 2.- Main indicators for Sector 51 and Subsector 518. Economic Censuses 2004-2014**

NAICS México 2013 code	Establishments			Employment			Incomes (millions Mx. pesos)		
	2014	**2009**	**2004**	**2014**	**2009**	**2004**	**2014**	**2009**	**2004**
51 Mass media information	9,338	11,354	7,586	287,617	293,550	244,679	568,883	453,229	284,793
518 Electronic data processing, hosting, and other related services	299	84	229	14,498	17,379	18,910	7,468	3,805	3,602

---

[3] Registro de Negocios de México (RENEM by Spanish acronym)
[4] Source. INEGI. Censos Económicos 2014. Resultados definitivos/SAIC.
http://www.beta.inegi.org.mx/app/saic/default.aspx

5

The 33ᵗʰ meeting of the Voorburg Group on Service Statistics
Session: Data processing, hosting and related activities (ISIC 6311)

VOORBURG
GROUP

ROME
2018

However, structural data show significant growth, for example, in 2014, in real terms, industry revenues increased by more than 60% compared to 2004; by the other hand the number of persons employed decrease in (-)17%

Electronic data processing, hosting, and other related services
Incomes
(millions Mx. pesos)

Year	Income
2014	7,468
2009	3,805
2004	3,602

Electronic data processing, hosting, and other related services
Employment
(number of persons)

Year	Employment
2004	18,910
2009	17,379
2014	14,498

6

The 33th meeting of the Voorburg Group on Service Statistics
Session: Data processing, hosting and related activities (ISIC 6311)

VOORBURG
GROUP

ROME
2018

Moreover, short-term statistics from the Monthly Services Survey (series 2008 = 100)[5], shows the evolution of the revenues: the average index is about 91.6% respect to the base year; on the other hand, employed personnel show a downward trend, implying that data processing activities are not necessarily labor-intensive, but in talent and specialized technical knowledge.

Electronic data processing, hosting, and other related services
Total incomes (for the provision of services)
Weighted Index
(2008 = 100)

7

The 33th meeting of the Voorburg Group on Service Statistics
Session: Data processing, hosting and related activities (ISIC 6311)

VOORBURG
GROUP

ROME
2018
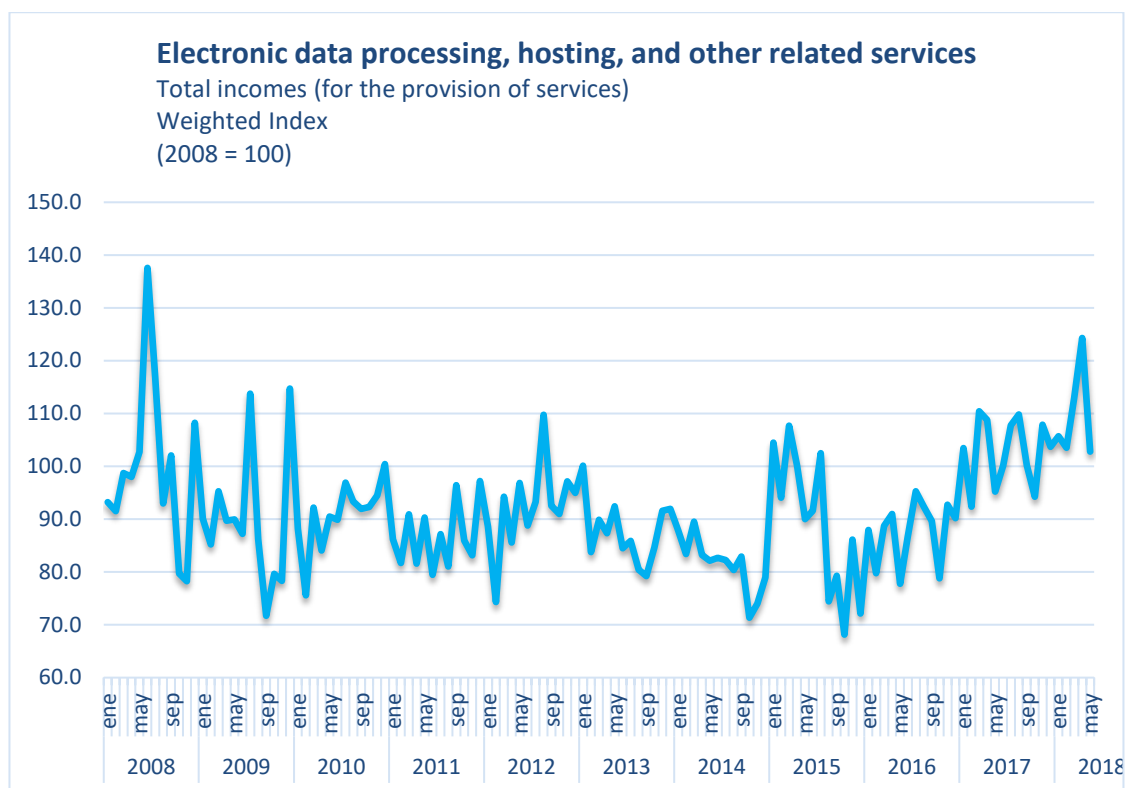
Electronic data processing, hosting, and other related services
Total employed personnel
Weighted Index
(2008 = 100)
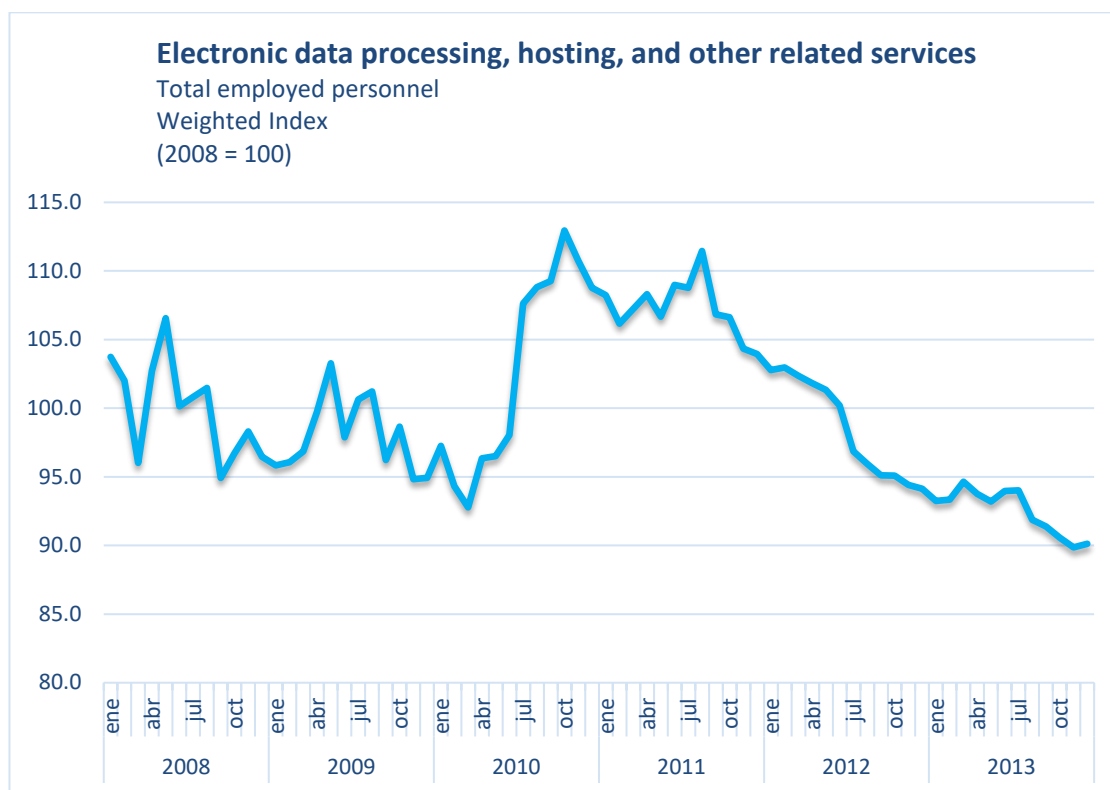
According to the results of the Annual Private Non-Financial Services Survey[6], revenues from the industry have had an increase, as well as fixed assets.

Table 3.- Main indicators for Subsector 518. Annual Private Non-Financial Services Survey,2014-2016

Variable	2014	2015	2016
	Thousands Mx. Pesos		
Annual incomes	5,263,288	5,650,757	6,107,262
Fixed assets	969,770	976,830	1,230,107
Incomes per person (as productivity)	718.3	749.1	679.3

---

[6] Source: INEGI, Encuesta Anual de Servicios Privados no Financieros, 2014-2016.
http://www.beta.inegi.org.mx/proyectos/encestablecimientos/anuales/easpnf/2012/default.html

8

The 33th meeting of the Voorburg Group on Service Statistics
Session: Data processing, hosting and related activities (ISIC 6311)

VOORBURG
GROUP

ROME
2018

The products (goods and services) of this industry are usually aimed at companies (B to B), although households may also hire or supply some of the services, however, given the large number of products in the industry, different combinations could occur in the provision of services: B to B, B to C; B to All.

According to the preliminary product list of the North American Product Classification System (NAPCS Mexico), the following are principals:

- **Design and applications development**

- **Provision of information technologies (it) infrastructure and lodging**

- **Business process management**

- **Information technology infrastructure management**

- **Technical support on information technology**

- **Processing information and documents**

- **Continuous internet access**

- **Design and development of web sites and databases**

- **Design, development and integration of computer systems**

- **Design and development of networks**

However, these products may be secondary or even principals in other industries, such as *Internet content publishing and broadcasting and web search services* (519130, NAICS Mexico 2018) or *Computing service design and related services* (541510, NAICS Mexico 2018).

Regarding to public regulation, companies engaged in data processing do not require greater requirements than those established for the standard operation in other industries:

- **Tax authority register**
- **Social Security register**
- **Municipality requirements and license (if apply)**
- **Ministry of Economy requirements (if apply)**

9

The 33ᵗʰ meeting of the Voorburg Group on Service Statistics
Session: Data processing, hosting and related activities (ISIC 6311)

VOORBURG
GROUP

ROME
2018

1.3.- Specific characteristics of the industry

Data processing is a constantly changing activity, the impact on the development and evolution of information and communication technologies, affect the services and products of the companies; the activity could not be understood without, for example, services in the cloud, data transfer, automation of productive processes or even, the relationship between consumers and producers.

Part of this technological evolution is for example, *Cloud computing*[7]. Usually consists of several data processing centers that have software installed to provide a service. With our computers, tablets or smart phones all we do is connect via the Internet to these data centers to carry out the task we have to do.

Following some examples of common cloud services:

- Store applications such as Google Cloud, the APP store, etc.
- Web applications like Office suite of Google Gdrive, the Office suite of Microsoft Office 365, the Mail of Gmail, etc.
- Services to store data such as Dropbox, Owncloud, Box, OneDrive, etc.
- Music or video game platforms such as Spotify or Steam.

For National Statistical Offices, the challenge is to identify and measure the economic phenomenon that data processing assumes, either through targeted studies or through sampling surveys, censuses and administrative records; but one of the constraints is that companies are not located in the country but offer their services from overseas.

However, in the next Economic Censuses program, a special study will be conducted to identify and characterize this kind of units, since their form of organization does not respond to the traditional observation units.

---

[7] Technically the graphical representation of the cloud in a schema means that there is a process of communication between 2 points, which do not belong to the same network, which allows the data to arrive from one point to another.

10

The 33th meeting of the Voorburg Group on Service Statistics
Session: Data processing, hosting and related activities (ISIC 6311)

ROME
2018

2.- Turnover/output measurement

In Mexico, the basic statistics for the measurement of turnover/output are based mainly on economic censuses and sampling surveys; but recently efforts have been made to use administrative tax records.

Basic statistic has two main users: The System of National Accounts (SNA) and users in general; the input for the SNA is detailed data on employment, salaries, expenses and incomes, among other qualitative variables. For example, the Monthly Services Survey and Annual Private Non-Financial Services Survey, has in its industry coverage, the *Electronic data processing, hosting, and other related services*, with the following characteristics:

- NAICS code: ***5182 Electronic data processing, hosting, and other related services***

- Sample framework: ***Economic Censuses and the Business Register***

- Sample size: ***27 establishments***

- Sampling scheme: ***Non-probabilistic (with a coverage of 85% for the total of income as design variable)***

- Geographic coverage: ***National level***

- Variables collected on monthly basis: ***Personnel employed; remunerations; total expenses and total incomes.***

- Variables collected on annual basis: ***Personnel employed structure; expenses structure, income structure and fixed assets among other qualitative data***

Note: **Monetary values are expressed in thousands of Mexican pesos at gross value.**

11

The 33ᵗʰ meeting of the Voorburg Group on Service Statistics
Session: Data processing, hosting and related activities (ISIC 6311)

VOORBURG
GROUP

ROME
2018

2.1.- Description of methods for measurement.

The main concept for measure output are the **incomes**, however the questionnaires applied, monthly and yearly, contain other variables related, like the number of people employed, according to the work-contract and sex, salaries and operating expenses, among others.

Data on incomes are collected in a monthly and annual basis; output data are used by the SNA for calculations of GDP and other macroeconomic indicators.

Additionally, based on the basic statistics, monthly weighted indexes (base 2008=100)[8] are calculated for incomes, personnel employed, expenses and salaries, as well as a quarterly productivity index at sector level.

Indices reflect growth in real terms, by which monetary values are deflated with SPPI at sector level.

---

[8] Laspeyres-type base and fixed weight indexes.

12

The 33th meeting of the Voorburg Group on Service Statistics
Session: Data processing, hosting and related activities (ISIC 6311)

VOORBURG
GROUP

ROME
2018

3.- Evaluation of measurement

Economic censuses and sample surveys, have proved to be efficient methods for collection and data processing for the industry, particularly in the measurement of turnover/output; the level of detail requested in the questionnaires and periodicity, allow having more and better data directly from companies; however, it is necessary to study alternatives sources of information, for example, administrative tax records or social security, as well as data from regulatory institutions.

In general terms, basic statistics is well aligned with SNA requirements, however, information needs and the detail of the data are increasing, what constitutes a challenge for short-term statistics, because frequently companies report gross billing values, which may include advance or accrued payments and not necessarily the estimated value of the production in the reference period. An alternative to solve this dispute in the accounting reports, would be to keep preliminary data and at the end of the reference period, update reports by the definitive values, as well as, ask to the companies the net values.

It has proposed a number of improvements to the collection process and processing, for example, ask companies for quarterly data on the value and the volume of its products (goods and services), in order to calculate an experimental implicit price index.

Other improvements and major challenges for the measurement of the industry are the following:

- A better and understandable industry classification and products definitions
- Include Cloud Computing services and Software as a service (SaaS)
- Explore new alternative data sources
- Clearly identify enterprises engaged in the data processing

The next 2019 Economic Census, will include a series of improvements to the questionnaires, which will allow a better characterization of the data processing industry and the companies.

The information and data generated by the Economic Censuses will be the basis for framework updating and the sample surveys, but will also allow a better understanding of the sector, through detailed qualitative information.

13

The 33th meeting of the Voorburg Group on Service Statistics
Session: Data processing, hosting and related activities (ISIC 6311)

VOORBURG
GROUP

ROME
2018

Conclutions

In Mexico, data processing services, while not a relatively large industry, in terms of incomes and personnel employed, have been growing significantly in the last five years; given this growth, it is very important to improve turnover/output and products measurements, including cloud services and SaaS services; improvements will begin with the upcoming 2019 Economic Censuses, and will be reflected in the sampling surveys program, and by the other hand, alternate sources of data, such as administrative tax records, will be analyzed.