Progress Towards Profiling in the Mexican Statistical Business Register

Abstract

In Mexico we are in the onset of business “profiling” for a Statistical Business Register (SBR), and some steps are being taken in this regard.

We have conceived the Mexican SBR as a matrix that holds the list of all the businesses in the country with their identification and location data, which is the basis of the Mexican National Directory of Economic Units. The stratification variables and other basic variables are also associated to every business. This matrix is fed by different sources of information that provide data on the variables linked to every business, that go from censuses and surveys up to administrative registers of different government agencies, like the tax bureau.

The business list or directory includes both the companies and establishments that compose every enterprise, so the SBR will be the basis for producing statistical information at both enterprise and establishment levels. To be able to associate every establishment to the enterprise it belongs to, detailed work was done and denominated “enterprise assembly”, understood as a set of all the establishments that share the same legal name. That means that there is a clear identification of what enterprise every establishment belongs to.

This paper describes the work done to perform “enterprise assembly”, as well as some other tasks based on the assembly and linkage of some sources of information with others, though there is still much work to do to reach a SBR and a wide profiling system.

Introduction

Mexico is initiating the work to have a coordinated administrative register system for economic statistics. The SBR is within this system that is conceived as a matrix to concentrate basic information on all the businesses in the country and serves as the basis for producing statistical information at both enterprise and establishment levels, in periods of time that may range from monthly up to yearly, five-years and others.
The Statistical Business Register (SBR) is a matrix in which all the businesses in the country are listed, at enterprise level and also at the level of every establishment that integrates it. Associated to every establishment and every enterprise there is a series of data, among which are mainly the following:

1) The data (identification codes) that allow linking every establishment and enterprise with the same establishment or enterprise in the census database, in the monthly and annual surveys or other agencies’ databases, as the tax bureau, the provider of electric service, the social security office, through a unique statistical identification code. Currently there are many identification codes and the bases for adopting only one identification code are being set, which is the Statistical Business Code (CLEE, by its acronym in Spanish).

2) The identification data of every establishment and enterprise, as: Trade name and the owner’s name or legal name.

3) Location data of every establishment and enterprise, as: Name and type of road where the business is located, internal and external number, name and type of human settlement (colony, neighborhood, or other), locality code and name, municipality and state, as well as the geographic coordinates for its location in the geographic and cartographic space.

4) Economic classification data: activity class code and denomination according to the North American Industrial Classification System (NAICS), Mexico.

5) Variables that allow performing stratification for the statistical design of the surveys in establishments or enterprises, as: persons employed, incomes, production value or other economic variables, as: the use of technology, length of service, among others.

6) The history of every enterprise or establishment about a change, or for example trade name, legal name, address, among others.

7) Identification of the source that provides the data.

The purpose of the register in providing data on both establishments and enterprises has implied intensive work to identify all the establishments that share the same legal name, and with these data form an “enterprise”. This activity is denominated “enterprise assembly”, which is addressed in the first section of this paper.

On the other hand, statistical products derive from the business register, as the National Directory of Economic Units (DENUE, by its acronym in Spanish) and its query system, the sampling frame for surveys in enterprises or establishments and business demographic indicators. Some tasks are being carried out, allowing the production of joint indicators among different agencies of the Mexican government and INEGI, tasks that are also addressed at detail in section 2 of this paper.

It is important to mention that as a result of the commitments and agreements established jointly by the countries of Latin America and the Caribbean that participated in the Regional Public Goods project
“Statistical Frame for the Directories of enterprises and establishments”\(^1\), the technical recommendations and best international practices appropriate to the national context in the Mexican statistical business register are being considered, which will contribute in the implementation of a Latin American collective project that will result in the quality of statistical information on companies and establishments, their consistency and comparability at regional and global levels.

1. Enterprise Assembly

In this section we will explain how the enterprise assembly is carried out for the SBR, taking every establishment’s data as the basis for the formation and classification of enterprises, as well as reviewing international recommendations like the International Standard Industrial Classification (ISIC) Revision 4 and the European Union’s Business Registers Recommendations Manual, regarding the establishment, the enterprise and the legal units.

From this context, in Mexico the Enterprise is defined as “the economic unit that settled permanently in one or more physical locations bounded by buildings and fixed facilities, combining actions and resources for production of goods and services under the control and direction of a single owner entity, thus having the capacity of performing all the possible ranges of transactions by own rights and decision, and even incur liabilities and decide the way to transact with others, since that is where the various establishments that form it make the operational decision”.\(^2\)

For enterprise assembly, two types of units are identified, the multi-establishment enterprises and single-establishment enterprises, i.e. the ones formed by two or more establishments, and the ones formed by only one.

To form a multi-establishment enterprise, two or more establishments must obey a single business name; they relate through it since it is the main linkage variable. The establishment that will act as representative of the enterprise is the parent company, in it the number of establishments that integrate it are identified and their stratification variables are built as the sum of all the establishments that form it. The formation of the enterprises is not static: monitoring is given to both the new branches as well the deregistered.

When the assembly has been concluded, the statistical business code (CLEE) is used as the unique identifier, both for companies and establishments.

Now to define the enterprises’ classification, the classification of the establishments is first required; these are classified according to NAICS, which arose from the need for economic statistical information that is comparable among the United States of America, Canada and Mexico, obtaining its first version in 1997. This classifier builds on the ISIC, and its Revision 4 is consistent at a 2 digit level with the NAICS activity classes (that consist of 6 digits).

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\(^1\) In which Mexico participated together with 10 other countries: Brazil, Chile, Colombia, Ecuador, El Salvador, Honduras, Paraguay, Peru, Dominican Republic and Uruguay.

The 2007 NAICS is formed by 20 economic activity sectors that are divided into 94 subsectors, 304 branches, 617 sub-branches and 1,049 activity classes.

For the multi-establishment enterprises, the classification is determined according to the economic activity performed by the establishments that form it. Some cases are mentioned below:

a) That all the establishments share the same activity class
b) That some establishments be classified in different branches and subsectors
c) That some establishments belong to different sectors

Analyzing the complexity of allocation of an economic activity at a 4 digit level, i.e. branch level, the most indicated variable to guarantee that the enterprise classification is the most appropriate is the Census Gross Value Added, which is the difference between Intermediate Consumption and Total Gross Output. It is defined as the value of production that is added during the work process exerted on the materials consumed in performing the economic activity.

With this purpose, the Top Down method or the descendent procedure method is used. It is applied for the Census Gross Value Added variable and consists of assigning the highest level of aggregation; in this case we are referring to the activity sector, based on the highest participation of the variable. This method is replicated in nested form at sector, subsector and branch activity levels.

This is how it is possible to obtain the enterprises` classification, which could be used for statistical and study purposes, as well as for the SBR.

In a next grouping level are the corporative, holding companies, integrators, or business groups. They are economic units mainly engaged in corporate business management to define or influence policies and action plans of other economic units of their property. Currently, work is being done to identify these groups and be able to consider them as a unit under study in this enterprise assembly.

2. Linkage work of the administrative registers with surveys and censuses

Based on the SBR and enterprise assembly it is easier to link companies from one statistical project to another, whether they are censuses with administrative registers or surveys with administrative registers, etcetera, to generate new statistical products that combine data from two or more projects, offering more comprehensive statistics, with a higher level of detail, timelier, or that allow better analysis.

In this section two experiences in Mexico are revised in this sense: the linkage of foreign trade administrative registers with the manufacturing surveys, and the linkage of large establishments with the administrative registers of the electric service, tax administration and social security bureaus.
2.1 Linkage between Foreign Trade administrative registers and the Manufacturing Surveys

With the purpose of obtaining more information on the characteristics of the enterprises engaged in foreign trade of goods from Mexico, the linkage was performed between the foreign trade registers provided by customs, with manufacturing companies that are captured by the Manufacturing Surveys that are part of the SBR.

This work builds on the recommendations given by the United Nations Statistics Division and the OECD, which poses the link of businesses’ structural information with their respective trade flow registered by customs to contribute in the analysis of the Economic Globalization phenomena.

This is the first time INEGI performs the link between business statistics and foreign trade registers, which strengthens the statistical infrastructure with a broader view of the manufacturing activities related to the foreign sector and global production processes.

As a result of the linkage work, the Profile of Export Manufacturing Enterprises (PHEME) was elaborated, constituting the basis for developing other studies in the field of foreign trade statistics, as the calculation of Value Added of Global Manufacturing Exports (which is produced in the framework of the Mexican System of National Accounts), as well as exports by state.

Specific Objective

Provide figures on exports and imports of goods, distinguishing the features of manufacturing enterprises engaged in international trade, as well as fostering the development of new statistics to provide more robust information on foreign trade to national accounts and support those responsible for the design of public policies.

General description of the process

The linkage relates the business information produced by INEGI through the 2009 Economic Census and the 2007-2012 Annual Manufacturing Surveys with the Administrative Registers of Foreign Trade of Goods provided by the General Administration of Customs for the calculation of the Trade Balance in that same period. Likewise, the link centralizes on the manufacturing establishments engaged in the exports and imports of goods, classified in the Industrial Manufacturing activity sector 31-33, according to the North American Industrial Classification System (2007 NAICS), Mexico.

Considering that the information from the Economic Censuses and the Manufacturing Surveys is captured by establishment and that the information corresponding to Foreign Trade of Goods is collected by enterprise, the enterprise assembly (described above) was taken as the starting point.

The formation of enterprises was done with the 2008 information on establishments, i.e. the reference year of the 2009 Economic Censuses, and to follow up on the formation of enterprises in non-census years, two criteria are applied:
A. For 2007 (year when the statistical linkage analysis begins), the operation initiation year provided by the 2009 Economic Census is considered, which determined if the establishments that form an enterprise already existed in 2007.

B. For the 2009-2012 period, the set of economic units was updated in terms of the results derived from the field operations in the National Economic Surveys, particularly from the Manufacturing Surveys, as well as from the register of Units with Industrial Manufacturing, Maquiladora and Export Services Program, (IMMEX Program)3 provided by the Ministry of Economy.

In this sense, it was possible to form an average of 9,467 enterprises that include a total of 22,021 establishments in the period 2007-2012.

Of the 9,467 formed enterprises, those with outward orientation were distinguished, according to the following criteria:

1. Enterprises that register product sales abroad.
2. Enterprises that purchase raw material and other inputs from abroad.
3. All the manufacturing companies with IMMEX Program.

**Obtained results**

Having applied the three criteria described above, 7,356 enterprises with foreign market orientation were distinguished (i.e. 78% of the formed enterprises), and proceeded to locate them in the Foreign Trade Administrative Register’s database. For this purpose, the legal name was used as the main search criteria; also, the Federal Taxpayers Registry (RFC by its acronym in Spanish) was used as additional element to get information from the IMMEX Program that incorporates the RFC to identify the companies with permission to perform activities under this Program.4

With the purpose of guaranteeing the monitoring of formed enterprises, it was ensured that only one business name corresponded to the RFC, likewise that the register counted on all the digits it consists of, which are integrated in a database of manufacturing companies linked to foreign trade of goods that is exploited to produce the Profile of Export Manufacturing Enterprises (PHEME), denoting the characteristics of manufacturing companies involved in foreign trade in our country.

Finally, it is pertinent to point out that the result of the linkage reached coverage of 84.3% in average during the period 2007-2012, relative to the export and import of manufactured goods from Mexico.

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3 Companies of legal persons that can be in the modalities of parent companies, industrial, services, shelter and outsourcing, according to the Decree for the promotion of the 2014 industrial manufacturing, maquiladora and export services, established in the Mexican Ministry of Economy for the promotion of export of goods.

4 Out of 7,356 companies oriented towards the foreign market, 7,193 were successfully linked in the foreign trade of goods’ database for the 2007-2012 period. It is convenient to highlight that most of the companies that were not linked performed non-manufacturing activities and are out of the scope of this study.
Profile of Export Manufacturing Enterprises (PEME) as input for new statistical products

PEME’s methodological scheme, based on the enterprise assembly and the linkage of Annual Manufacturing Surveys with the Foreign Trade Registers, is of great utility for generating additional products that enrich current statistics. In this sense, greater elements were made available to calculate Exports by State, which take the addresses of the establishments that form part of an enterprise (data provided by the Economic Censuses), in order to determine the State where the economic units that manufacture goods for exportation are located. The calculation builds on the identification of the state of origin of the exportation, and with this criterion contributed in accomplishing the assignment by state of more than 80% of exports performed in our country.

Finally, in the frame of the Mexican System of National Accounts, the methodological scheme of enterprise assembly and linkage was of great value for the calculation of Value Added of Global Manufacturing Exports, since it provided more robust information for identifying within the group of exporting firms, those engaged in global production of goods. For this purpose, the broad overview provided by the foreign trade registers linked to the Manufacturing Surveys has been of great utility, regarding the type of goods imported and exported by manufacturing companies as well as the characteristics of these companies.

2.2 The link with the tax administrative, electric power and social security registers

Providing users more varied and timely statistical information is a challenge we have in the frame of the Statistical and Geographical Information System (SNIEG by its acronym in Spanish), therefore a project linking the biggest and most representative establishments of the economic activity is included in the SBR, with the administrative registers produced by the different agencies of the Mexican government. This set of establishments —denominated “Master Sample”— will allow different users to periodically observe the performance of various indicators of the national economy, since it is integrated by nearly
170,000 businesses that represent 80% of the Production Value in the country (according to data from the 2009 Economic Census).

A series of activities are being directed toward the identification of these establishments in the administrative registers of the tax bureau in the country (SAT), social security service (IMSS) and the electric power service (CFE), linking them to the SBR through the unique statistical code (Statistical Business Code).

The denominated “Master Sample” includes the establishments registered in the SBR under Manufacturing, Trade and Services that are considered “large”, i.e. the ones with the following characteristics:

1. 50 million pesos of annual income
2. 100 or more persons employed
3. More than one establishment registered under the same legal name in more than one state.\(^5\)

Up to date work has been done to link these SBR’s large establishments to the different administrative registers, taking as main basis the geographical location data and legal name for the identification of economic units. The linkage to the electric power service also considered the number of the electricity measurer of every business, while in the cases of SAT and the IMSS, the taxpayer code (RFC) data was used.

The progress done to date in the linkage of the registers in the “Master Sample” is shown in the following table:

<table>
<thead>
<tr>
<th>Linkage by:</th>
<th>“Master Sample” (167,444)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CFE</td>
</tr>
<tr>
<td>Establishment</td>
<td>Absolutes</td>
</tr>
<tr>
<td>Enterprise (same legal name)</td>
<td>120,248</td>
</tr>
<tr>
<td>Enterprise (same legal name)</td>
<td>151,432</td>
</tr>
</tbody>
</table>

Table 1. Matching establishments from the administrative registers with the “Master Sample”

The linkage of these registers will allow producing timelier indicators to describe some elements or tendencies of the national economy in a more orderly and harmonized way among agencies in the country.

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\(^5\) The establishments that share the same legal name but are located in the same entity must meet the criteria of income or persons employed of subsections 1 and 2 to be incorporated into this set of establishments.
3. Conclusions

There are four fundamental conclusions. The first is that the SBR has perfect sense in the context of an economy like the one in Mexico, where on one hand there is a great quantity of small businesses that are hard to update, and on the other, there is a high degree of concentration in many activities and for them, that are the most important in the economy, the statistical business register has great potential because through its updating, monitoring and comparison, allows providing more statistical information on a very representative segment of the economy.

The second conclusion is that the Mexican SBR, although not yet finished, has produced notable results. We have various examples of this. One of them is that for the first time, the 2009 Economic Censuses were able to provide information by enterprise and not only by establishment, and allowed giving a wider context of the concentration and characteristics of the national economy. Another example addressed in this study was the linkage between the Manufacturing Surveys and the Foreign Trade Statistics, which allowed relating the annual statistics to the Foreign Trade Registers and this enabled producing information that was not known until then in Mexico, as the profile of export manufacturing companies or the value added of the exportations in global manufacturing or the exportation by state. Also, the work we are carrying out with the bureaus of electric power service, tax administration and social security, allows producing more information than we are actually disseminating as statistical agency.

The third conclusion is that since it is a priority topic for INEGI, the work on the strengthening of this statistical activity is being done swiftly.
Finally the fourth conclusion, no less important than the previous ones, is that we seek for the Business Register to serve as linkage and thereby empower and give greater consistency to economic type statistic in Mexico. Working with the various Mexican government agencies through SNIEG’s Specialized Technical Committees will allow us to have greater strength in administrative registers for statistical purposes.