Mexico´s experience in producing subnational figures on exports based on linking trade and business statistics

Session 3: Using the SBR to produce business statistics

Meeting of the Group of Experts on Business Registers

UNECE

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Outline

1. Introduction
2. Methodological aspects
3. Main outcomes
4. Conclusions and lessons learned

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Introduction

- Based on the use of Microdata Linking (MDL), INEGI produces Exports by State, which provides quarterly information on the export value of goods and the contribution of each of the 32 Mexican states in the total foreign trade considering the physical address of the establishments
- The outcomes represent a valuable tool for policymakers to support the design and evaluation of the effects of international trade on production, employment, investment at a subnational level, and how the domestic economic sectors in each state are engaged in the global supply chains

Methodological aspects

Methodological aspects: main characteristics

- Observation unit
  - for carrying out the MDL: Enterprise
  - for disseminating the outcomes: by state and economic activity
- Industrial classification system: North American Industry Classification System (NAICS)
- Industrial coverage: 26 subsectors (3 digit-level of NAICS)

Methodological aspects: main characteristics

- Main tables/figures: the tables with quarterly and annual information by federal entity (states) and activity subsector, totals by federal entity and totals by activity subsector
- Reference period: 2007Q1-2022Q1
- Frequency (periodicity) of data collection and dissemination: annual and quarterly information
- Timeliness: the figures are disseminated three months after the reference period

Methodological aspects: data sources

Exports by State is generated by using the SBR as the backbone for linking data from trade statistics together with Structural Business Statistics (SBS), regarding information on the physical address of the establishments, economic activity, and gross value output

Data Sources:

- The Statistical Business Register of Mexico (RENEM) with enterprise identification information, location (including geographical coordinates), industry classification, and other economic variables, such as the number of employees and revenue
- Customs declarations**,** which are the basis for producing international merchandise trade statistics (monthly)
- Structural Business Statistics (SBS) with additional economic variables to those from the SBR

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Methodological aspects: data sources

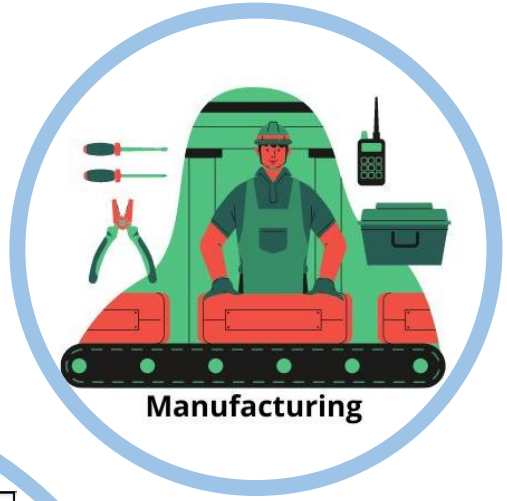
The SBS used for producing Exports by State are:

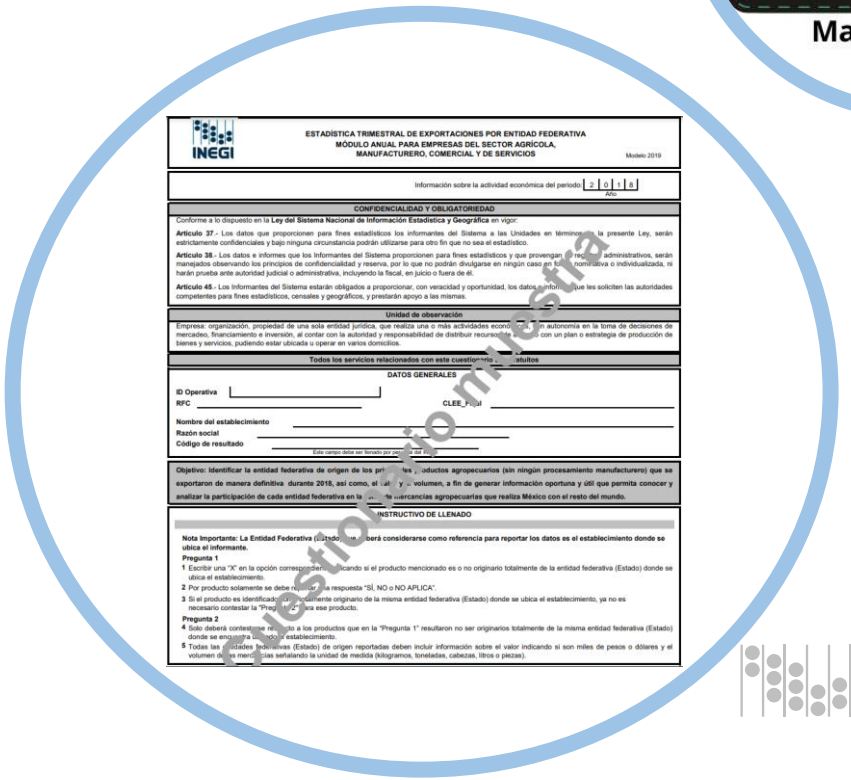
- Economic Censuses (on a quinquennial basis)
- Business Surveys
  - Mining and Metallurgical Industry surveys (annual and monthly)
  - Manufacturing Industry surveys (annual and monthly)
  - Module for Enterprises in the Agriculture Sector, Manufacturing, Trade and Services survey (annual)
- Manufacturing, Maquila and Export Services (IMMEX, by its acronym in Spanish) Statistics (annual and monthly)
- Administrative registers from the National Hydrocarbons Commission

Methodological aspects: MDL and the production process (1)

- The first step is to identify the exports values, legal name, and Tax ID of enterprises that reported trade transactions in the International Merchandise Trade Statistics of Mexico and that have as main economic activities, the Mining (NAICS Sector 21) and Manufacturing (NAICS Sector 31-33) sectors

- In the case of Agriculture, Forestry, Fishing, and Hunting (NAICS Sector 11), the information is obtained through the questionnaire "Module for Enterprises in the Agriculture sector, Manufacturing, Trade, and Services“





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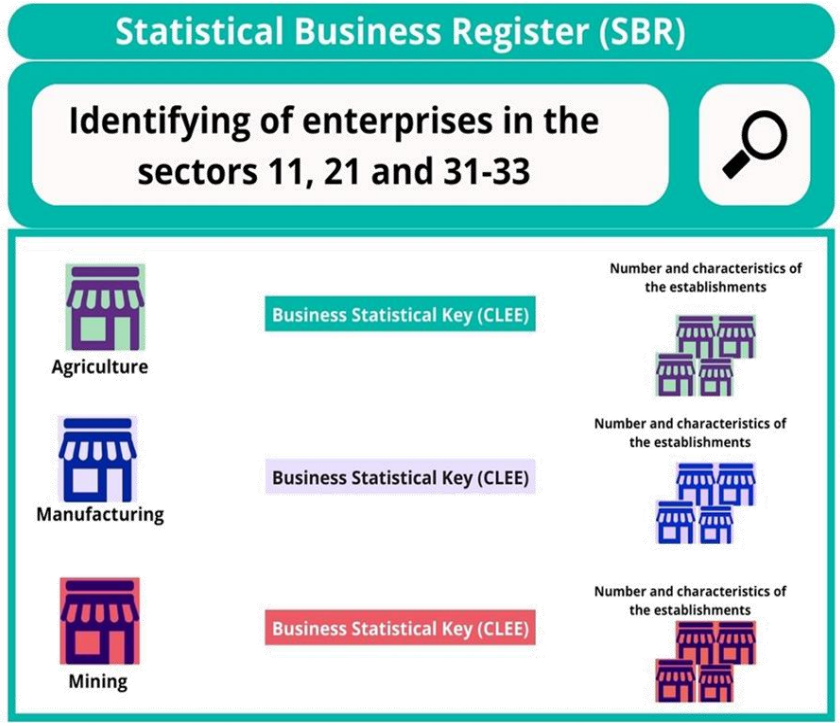
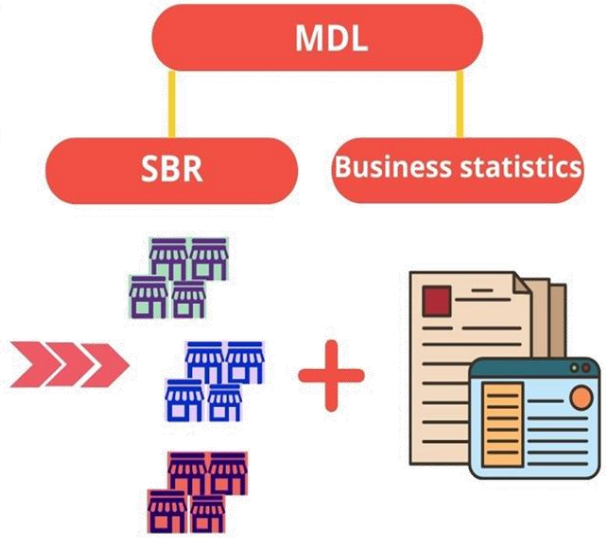
MDL and the production process (2)

- Secondly, the enterprises identified in step 1 are registered in the SBR to obtain their unique identifier, which is known as the Business Statistical Code (CLEE, by its acronym in Spanish), as well as to identify the number and characteristics of the establishments that belong to them

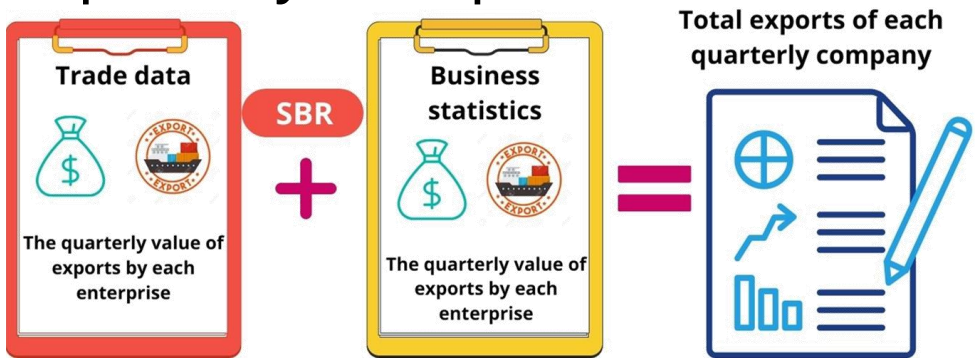
- Thirdly, the gross value output of the set of enterprises is obtained through the MDL between the SBR and the aforesaid data sources





MDL and the production process (3)

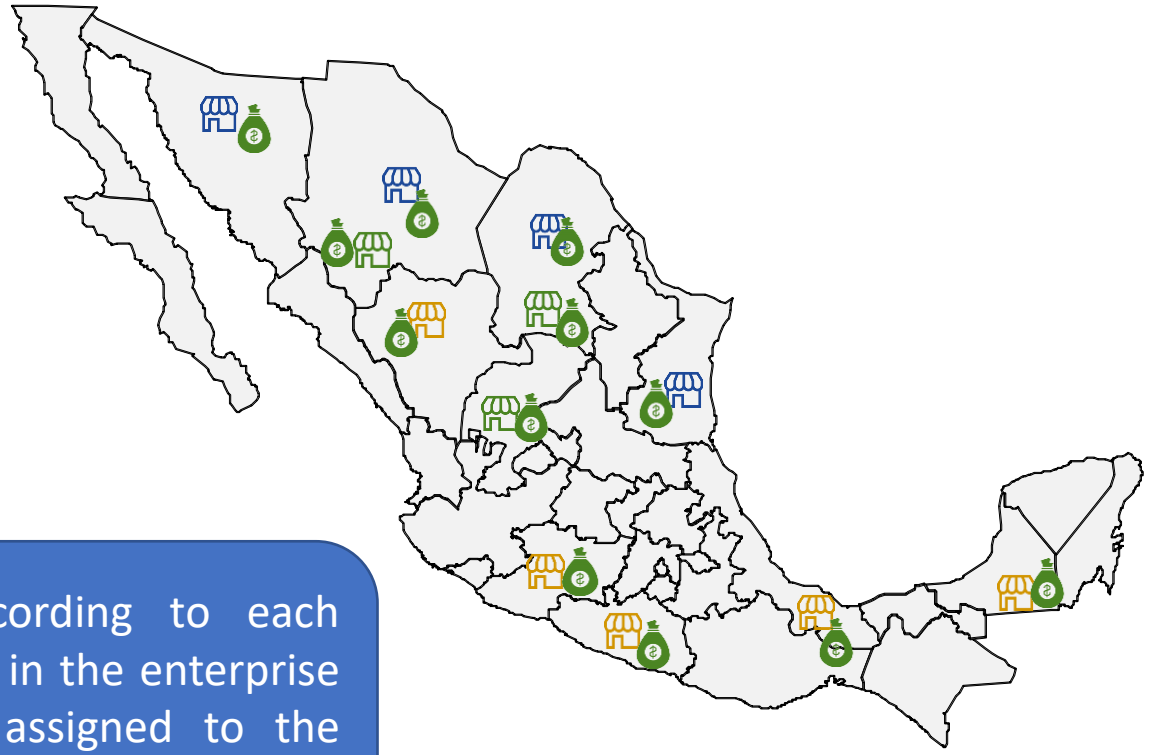
- Fourth, MDL between trade and business statistics takes place to obtain the quarterly total value of exports by enterprise



- Fifth, the gross value output of those establishments that are not included in the data sources used in MDL is estimated. These values are approximated based on the enterprises' shares they reported in the last Economic Censuses

MDL and the production process (4)

- Sixth, the exports value of each enterprise is allocated based on the physical address information of each of its establishments in the Mexican states



Type of enterprises

- **Multi-establishment enterprises**
  - It is distributed according to each establishment´s share in the enterprise gross value output, assigned to the state where they are located considering their NAICS subsector
- **One-establishment enterprises**
  - Directly assigned to the state where the enterprise is located and the NAICS subsector in which it is classified

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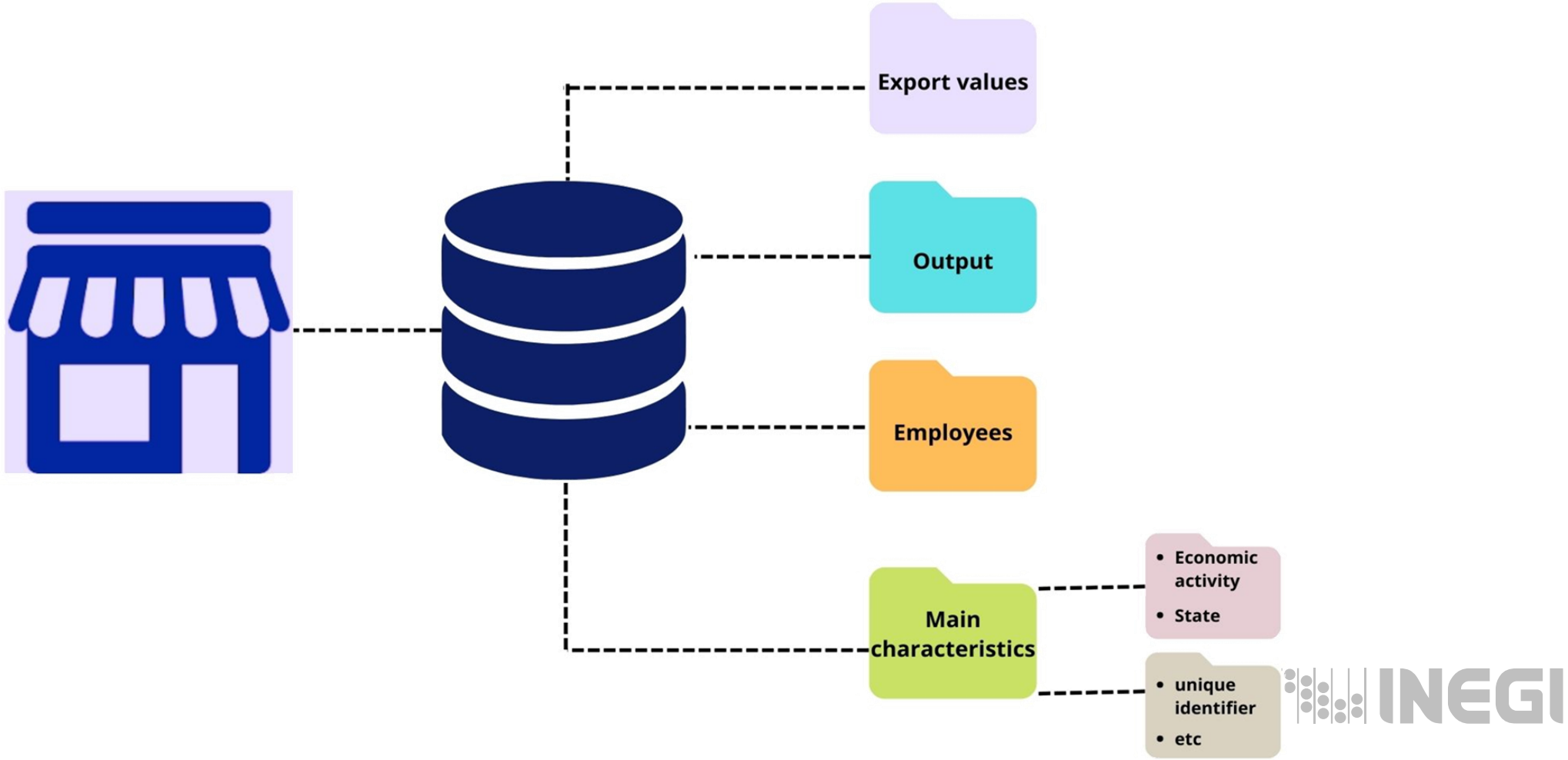
MDL and the production process (5)

Next, the databases are integrated at the establishment level with information on export values, output, employees and main characteristics (e.g., economic activity, state, unique identifier, among others)



MDL and the production process (6)

- Next, the micro-validation and macro-validation are run to identify any inaccuracies or miscalculations in the observed data:

Micro-validation

Performed to identify data at enterprise and establishment level, comparing it according to the trends and variations of their production processes

Macro-validation

Based on comparing results of exports by state and by economic activity, studying levels, coverage, trends and comparing data with other statistical sources (such as economic surveys)

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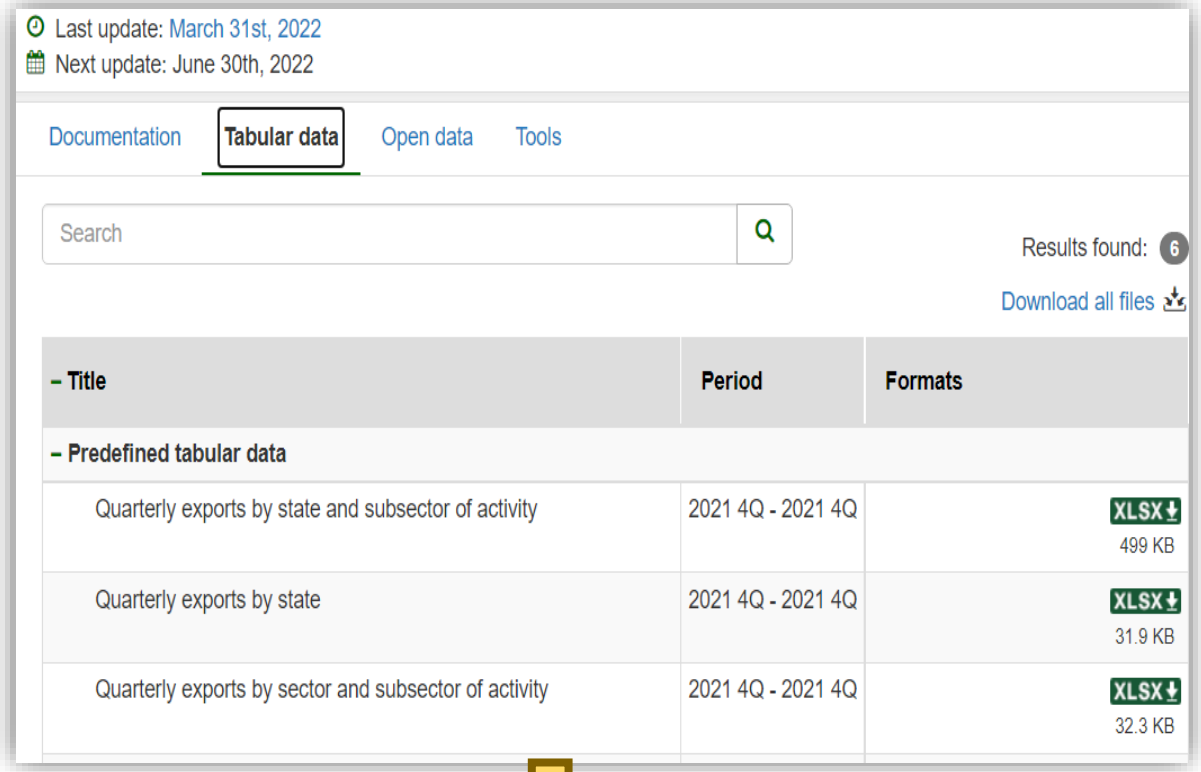
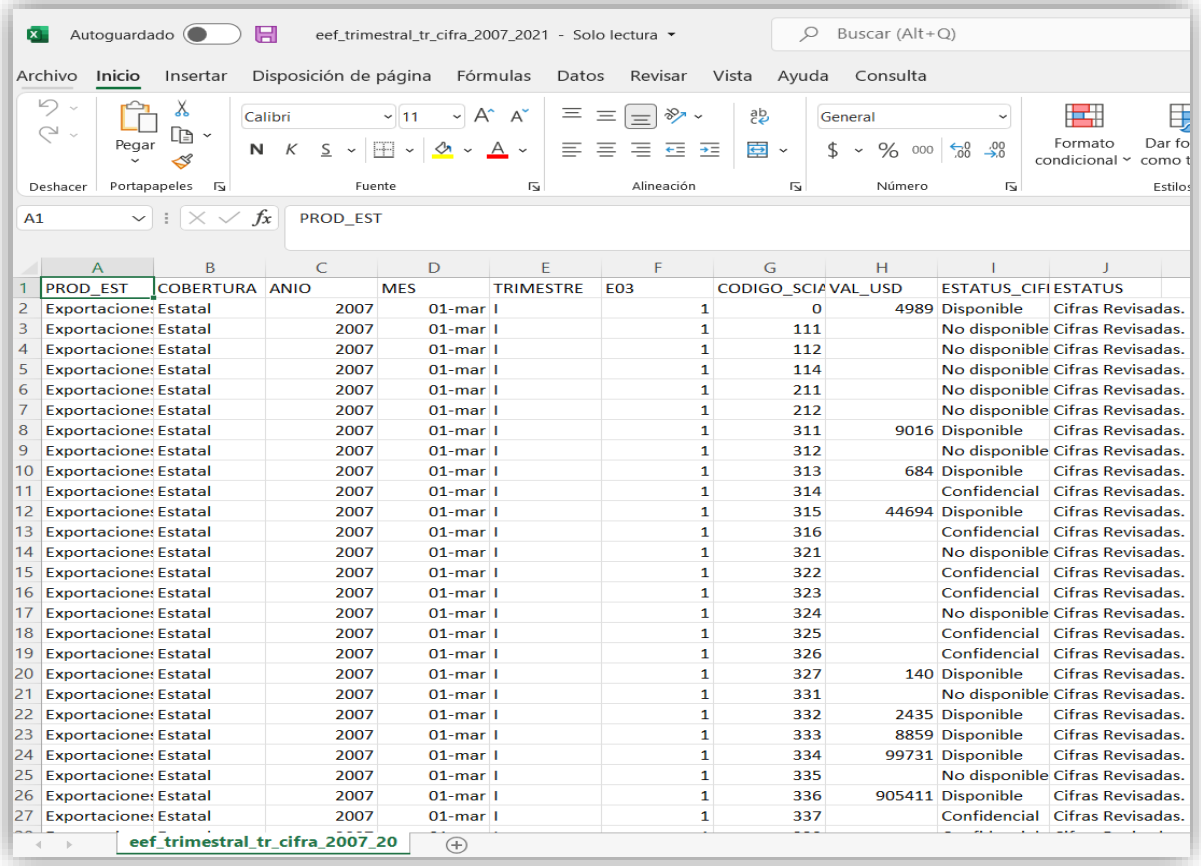
MDL and the production process (7)

- Finally, quarterly Exports by State figures are disseminated three months after the reference period

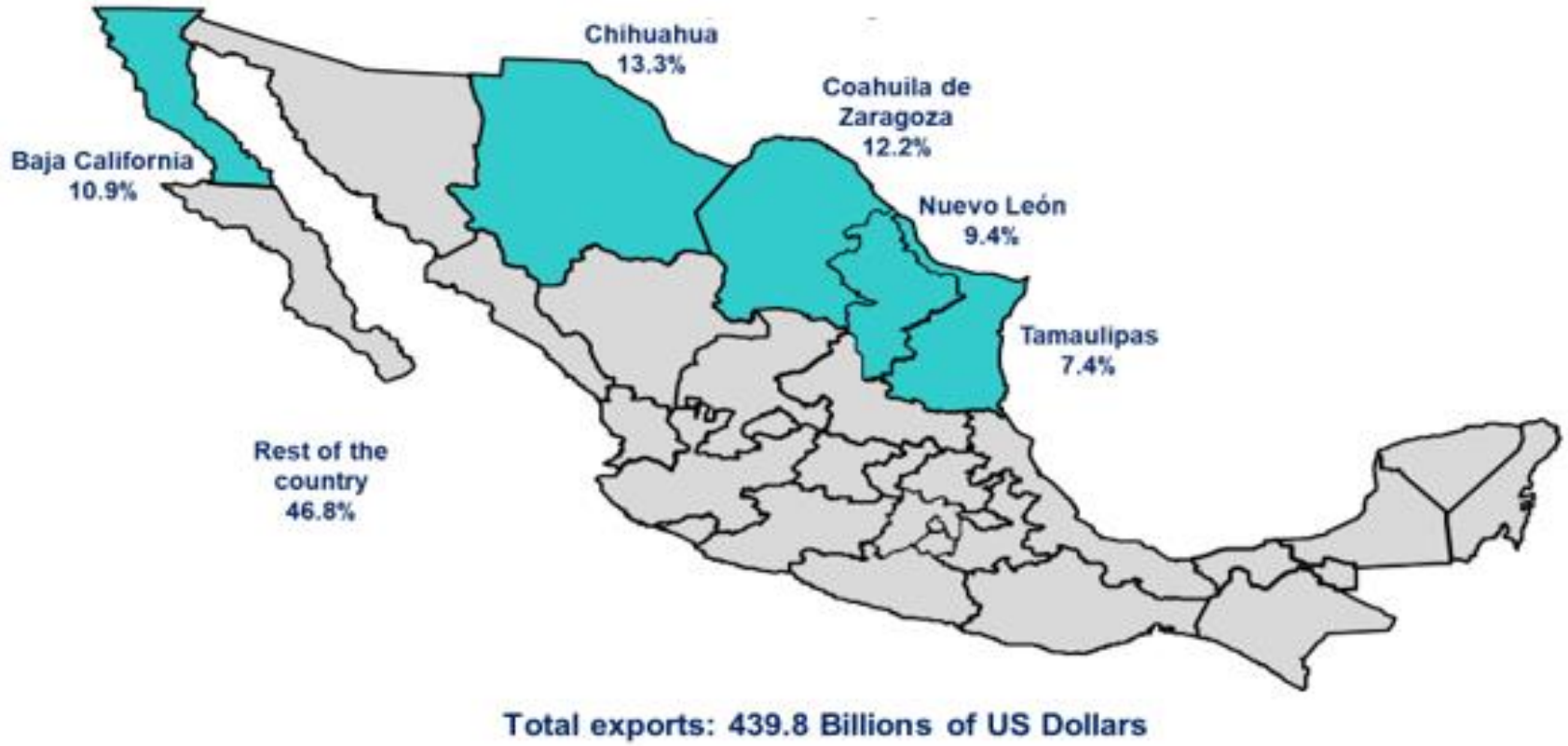




To consult more information on Exports by State, please visit:
http://en.www.inegi.org.mx/programas/exporta_ef/#Datos_abiertos

Main Outcomes

Share of exports by state, 2021



The states that reported the largest exports are those located at the northern border with the United States, accounting for more than half of the total exports (439.8 billions of USD), particularly, Chihuahua with 13.3%, Coahuila de Zaragoza 12.2%, Baja California 10.9%, Nuevo Leon 9.4%, and Tamaulipas 7.4%.

Exports by state, subsector 336 Transportation Equipment Manufacturing, 2021

The states with the highest share in the total exports of subsector Manufacturing of transportation equipment were Coahuila de Zaragoza, Guanajuato, Nuevo León, Chihuahua and Puebla. Together they accounted for 60% of the exports registered by this subsector

Exports by state, subsector 111 Agriculture, 2021

In the case of the agriculture subsector in 2021, the five top states accounted for 71.5% of the value of total exports in the subsector: Michoacán, Sinaloa, Sonora, Baja California, and Jalisco

Ranking of the share of total exports by State

2007

States	USD billions	Share	Ranking
Baja California	31.9	13.4	1
Campeche	29.1	12.2	2
Chihuahua	28.1	11.8	3
Tamaulipas	22.5	9.5	4
Nuevo León	19.8	8.3	5
Coahuila	17.5	7.3	6
Jalisco	14.4	6.1	7
Sonora	13.0	5.5	8
México	8.6	3.6	9
Tabasco	8.3	3.5	10
Rest of the country	44.7	18.8	

2021

States	USD billions	Share	Ranking
Chihuahua	58.5	13.3	1
Coahuila	53.5	12.2	2
Baja California	48.0	10.9	3
Nuevo León	41.5	9.4	4
Tamaulipas	32.6	7.4	5
Guanajuato	27.0	6.1	6
Jalisco	23.2	5.3	7
Sonora	20.8	4.7	8
México	17.5	4.0	9
Campeche	15.4	3.5	10
Rest of the country	101.8	23.2	

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Conclusions and lessons learned

Conclusions (1)

- MDL is a useful tool that allows producing more detailed statistical information by linking several sources and provides the main building block for strengthening the registers of enterprises. For carrying out MDL, the SBR plays a central role in linking data at the micro-level

- This method provides the basis for broadening INEGI´s statistical offer. For instance, to produce Exports by State and other Statistical Products (such as the profile of Manufacturing Enterprises of Mexico[1] and the Early Monthly Estimation of Mexico's Manufacturing Production Level using Electric Energy Consumption Data[2])

1. http://en.www.inegi.org.mx/programas/peme/
2. https://www.inegi.org.mx/investigacion/imoam/

Conclusions (2)

- The main outcomes show that in recent years, the states with the largest export values are those located at the northern border with the United States. They accounted for more than half of the total exports

- The figures derived from Exports by State represent a valuable tool for policymakers to support the design and evaluation of the effects of international trade on production, employment, investment at a subnational level, and they also show how the domestic economic sectors in each state are engaged in the global supply chains

- INEGI continues exploring the use of several data sources and innovative tools such as the MDL to bring new products and further breakdowns into the current statistics, reducing response burden and minimizing costs due to budget constraints

Gerardo Durand

Deputy Director General of Economic Administrative Records

National Institute of Statistics and Geography (INEGI)

gerardo.durand@inegi.org.mx

Conociendo México

800 111 46 34
www.inegi.org.mx
atencion.usuarios@inegi.org.mx

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Thank you!