

FOR PARTICIPANTS ONLY

REFERENCE DOCUMENT

DDR/24

2 May 2001

ENGLISH

ORIGINAL: SPANISH

ECLAC

Economic Commission for Latin America and the Caribbean

First meeting of the Statistical Conference of the Americas of the
Economic Commission for Latin America and the Caribbean

Santiago, Chile, 9-11 May 2001

**CHALLENGES AND TRENDS IN THE MODERNIZATION OF
NATIONAL STATISTICS SYSTEMS**

Improving Methodological Quality at the National Statistics Institute

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01-3-264

Introduction

The National Statistics Institute (INE) is responsible for coordinating the statistics and indicators compiled in the country.¹ This responsibility entails actually producing statistics and indicators or vetting those published by government agencies or public enterprises, as well as coordinating and validating privately produced statistics. From this standpoint, the INE must guarantee the quality of all statistical products provided in the nation, regardless of their source.

In its modernization effort, the National Statistics Institute has set about making improvements in five priority areas:

- Management practices and availability of technology
- Training of public spirited individuals
- Customer service
- Strength of Regional Offices
- Quality of statistics

Although the five areas mentioned above are all undergoing systemic changes, it is in the continuous improvement of the quality of statistics where we have been able to make the transition from a functional management style to the present style of managing excellence in the production of statistics.

This new management style has enabled the INE to assume a guiding role in technology as it has certified, vetted, and formulated the procedures necessary to obtain Integrated Statistics Systems and Quality Indicators that reflect the full thematic multidimensionality of the statistics by guaranteeing their comparability, consistency, and coherence at the national and international levels. Thus, the INE has been able to lead the national information market and gain a foothold in the international market with competitive advantages.

Accordingly, changes have been made in the INE's organizational structure with a view to meeting these challenges. The changes have been primarily aimed at ensuring methodological quality by means of ongoing evaluations, the study of new measurement techniques, the economic-statistical analysis of current economic trends and projections of the most significant variables, the possible expansion of the coverage of statistical production for National Accounts, the study and analysis of prices for goods, services, and factors of production, the professionalization of operational departments in order to improve the work of interdisciplinary teams, and monitoring fulfillment of commitments with respect to the management of traditional and new products. To this end, the following departments were established: Statistical Methodology, Special Studies and Analyses, Price Statistics, Organizational Development, and others.

The INE's modernization process has taken into account the major economic, societal, and management changes that have occurred in Chile. We can now say that we are fast approaching an integrated statistical system equal to those of the most advanced countries, with completely computerized collection, compilation, processing, and analysis of data.

¹ Law No. 17.374, October 1970

The Methodological Quality of Statistical Products Within the Frame of the INE's Modernization Effort

The INE's interest in covering society's new and growing information needs while meeting statistical development requirements has prompted it to review and update its internal processes and procedures for generating information.

Major improvements and innovations have been made in the statistical products made available over the past two years as a result of the rapid incorporation of new management styles in production procedures. The statistical quality indicators applied in the more advanced countries, including the emerging countries of Asia, those of the European Union, the Nordic countries, and Canada, have been adapted for local use.

In this context, the ongoing improvement of methodological quality in the INE's statistical products focuses on productive processes for compiling statistics, such as better customer service, the introduction of methodological advancements in the various designs undertaken by the INE, the incorporation of technological innovations along with ad hoc training during the data collection stage, improvements in data processing and results analysis, the adoption of different presentation formats and means of disseminating information, and finally, the maintenance and updating of statistical systems.

This effort to improve the methodological quality of the INE's statistical products has yielded results such as the creation of new products, methodological changes in procedures, and the incorporation of better technologies. Consequently, the coverage and quality of INE statistics has been enhanced.

Among the most important developments are:

- Demographic and economic censuses with the incorporation of new measurements and cutting-edge technology
- Up-to-date frames of reference for sampling households and businesses
- New indices that make it easier to describe the current economic situation
- Alternative methodological procedures for economic forecasts
- Decentralized territorial statistics and indicators relevant to each region's situation
- Consistent register statistics and comprehensive use of them to supplement statistical information, make it more timely, and reduce costs.
- Agreements with the Central Bank and other public and private entities to ensure complete micro- and macroeconomic indicators.
- Harmonization and verification of national statistics to ensure that they conform to international standards, as the Mercosur countries have done.

The modernization process led to more diversification of statistical products as these developments came about, heightening the need to place greater emphasis on the demand for statistics. As a result, a system had to be established to maintain and update the methodologies and procedures involved in compiling statistics.

The strategic project *Methodological Frame for Quality Statistical Production* was implemented to develop a mechanism for ongoing statistical quality control and monitoring. The objective is to measure the INE's statistical production according to international quality standards.

The information presented here reflects the most significant experiences garnered in the INE since 1998 with respect to the development of new products, methodological changes, other improvements, and the methodological quality project, which is now being implemented.

Description of Improvements and Methodological Innovations by Thematic Area and Product

1. Demographic statistics

1.1 XVII National Population Census and VI Housing Census of 2002

In anticipation of the XVII National Population Census and the VI Housing Census of 2002, the INE has implemented a series of methodological and technical innovations that will enable it to gather more information relevant to the country, which can be made available to the public more rapidly. One year prior to the census the INE conducts the so-called pre-census, which consists of a listing of the buildings, dwellings, and households, as well as a register of some economic activities. In the 2001 Pre-Census, more detailed information about buildings will be compiled, including the year of construction and the main materials used in major walls. As for other activities, information is being compiled concerning the business name, the main economic activity, the Uniform Tax Number (RUT), telephone and fax numbers, and the number of employees.

The information is gathered by means of special forms that can be scanned and automatically coded with the aid of specialized dictionaries of economic activities and geographic locations.

For the first time, the INE has outsourced the processing of forms, including the printing of forms and their distribution and collection by ground transportation. It has also outsourced some of the digital mapping involved in the census.

The maps generated for the Pre-Census and the Census are digitized, which will make it possible to generate digitized mapping products and databases after the two surveys are completed.

With respect to the 2001 Census Operation, the census form has been expanded to gather more detailed information related to housing, facilities, and utilities. Individual questionnaires now include questions about old age or youth, ethnicity, means of commuting to work or school, etc.

The census form is designed for rapid processing by means of character and mark recognition with the aid of specialized dictionaries.

2. Labour, social, and cultural statistics in household surveys

2.1. Labour statistics

Labour statistics are the focus of innovations with respect to estimation areas, frequency of collection, and supplementary thematic studies. For these purposes, the following methodological studies are being carried out:

2.1.1 Municipal Employment Pilot Study, intended to obtain a more detailed geographic profile of employment. This pilot study will be conducted twice between March and May.

2.1.2 Monthly Employment Pilot Study, intended to try out new operational sampling procedures in anticipation of employment estimations in future studies.

2.1.3 Working Conditions Survey, a supplement to the national employment survey that was conducted in the January-March quarter of this year. The purpose of the survey is to measure job stability using the three most important variables: the contractual relationship, affiliation with a healthcare system, and affiliation with a benefit system.

2.2 Social and cultural statistics

In the context of household surveys, the innovations cover the following areas:

2.2.1 Pilot Survey on Household Internet Use

This is a supplement to the national employment survey that was conducted in September 2000 in the Metropolitan Region and Region IV. It is exploratory in nature, designed to determine the applicability of such a study at the national level this year. The purpose is to characterize households connected to the Internet according to typologies of users, time online, and purpose of use.

2.2.2 Ongoing Family Budget Survey

This study was developed in conjunction with the Central Bank, and its purpose is to measure consumption expenditure (not income) using the concept of acquired consumption expenditure. This survey will take place between June 2001 and May 2002 in Greater Santiago.

2.2.3 Quality of Life Survey

This new type of survey is intended to meet the growing demand among public and private institutions for statistical information on social issues and developments that are affecting the lives of Chilean households and individuals. The basic idea is to formulate an Integrated System of Social and Cultural Statistics that will coordinate the various efforts now being made by different public and private institutions.

For this purpose, an omnibus or “ferry” survey was designed, encompassing a wide variety of issues associated with the population’s quality of life. Thus, these surveys can be repeated after a given interval in order to follow up on the phenomena that were measured.

The decision not to divert the INE from its purpose by using supplementary survey modules on social and cultural issues, as has happened in a great many countries, was made because the quality of labour market statistics and indicators deteriorates over time as a result of multiple uses of the survey.

The Omnibus Survey will consist of the following parts:

- **INE Base Module.** This is a methodological design of conceptual and operational definitions concerning the basic socioeconomic and sociocultural profile of households. It enables statisticians to stratify and devise typologies of households and quality of life. It will be a permanent module that will be repeated in every quality of life survey.
- **Supplementary Module.** This module will be developed by the INE in conjunction with a variety of institutions, incorporating consultations with public and private entities. It may

include aspects such as private space, degree to which basic needs are met, access to new providers, and relationship to the surroundings. This module will be carried out as often as necessary.

The survey will be conducted in households representing the different regions and urban and rural areas, as required by the research. It will take place two to three times a year, maintaining the base module.

Initial experience: INE-MINSAL

The initial experience in 2000 was the INE-MINSAL survey, which covered both urban and rural areas and featured urban, rural, regional, and country-wide estimations.

The questionnaire consisted of the INE base model described above and the MINSAL supplementary module. The latter was subdivided into a family sub-module and an individual one.

- The Family Sub-Module is intended to determine: the causes of acute morbidity in the population and the behaviour modifications made to address these problems; the incidence of accidents in the population, the damage caused, and the behaviour modifications made to address the problem; the prevalence of the principal illnesses and chronic health problems; and the prevalence of disability in the population, as well as access to special benefits or services.
- The Individual Sub-Module is intended to determine: Chileans' self-perceptions of their satisfaction with life and living styles and the variations among age groups, socioeconomic level, sex, and rural or urban residence; and the prevalence of factors affecting health so that baselines can be established for developing health promotion policies.

This study was based on a sample of occupied private dwellings, and was designed to use stratified three-stage sampling. The basis for the selection was the sampling frame defined for the Comprehensive Household Survey Programme (PIDEH).

The target population consisted of households and individuals 15 years of age and older, with national coverage. A total of 6,050 households were surveyed. The results were correlated at the following estimation levels: country-wide, regional, country-wide urban, and country-wide rural.

2.3 New Area Sampling Frame for Household Surveys

To ensure proper development of the aforementioned surveys and to reduce sampling and other errors, the *Area Sampling Frame for Household Surveys Updating Project* is being developed. Its purpose is to create a selection frame for sections and households updated for 2002.

The goal is the complete updating of the frame for the 2001 Pre-Census, incorporating the areas of new construction, restoring the sections in the frame to a uniform size, incorporating the boundary changes in blocks, incorporating the boundary changes in the political-administrative and urban census divisions, and evaluating the relevance of the estimation areas.

The current sampling frame is based on the 1992 census, with partial adjustments for new construction and periodic updates in the sample's sections.

3. Price statistics indicators

3.1 Consumer Price Index, CPI

The new methodology used for the CPI is based on the assumption of constant and stable updating processes over the next few years, and requires the maintenance of a system and technical support team, as well as methodological updates and surveys.

The ageing of the sample has historically been a limitation. Businesses that failed were replaced right in the field, seeking new ones of comparable size, geographic proximity, and prices. However, changes in market structure generally reveal the need to replace small establishments with supermarkets or chains, rather than similar businesses. To overcome this flaw, the current methodology calls for biennial Purchase Point Surveys and Sampling Updates.

After a certain period, and considering changes in the population's consumption habits, it became necessary to apply a system of adjusting sample sizes to maintain the requirements:

- Constant adjustment of variety-establishment by product, using a variance analysis for the purpose of discerning the value of opting to merge businesses or varieties so that the sample size of the product can then be determined.
- Adjustment of the size of the variation sample, which consists of adjusting the proposed size in accordance with calculations of price levels per product using a correlation method that makes it possible to measure the increase or decrease in the size required, considering the variation in price of each product as a measurement variable.

Another element is the introduction of price adjustments in response to changes in product quality. Because technological changes are so rapid, the variations – upwards or downwards – of product prices can be due partly to improved technical quality, and partly to net price increases. The new methodology allows the CPI to reflect only variations in the prices of goods and services. When there is an improvement in the technology, it really means a smaller increase, or even a reduction in the price, and that is reflected in the new CPI.

Under the Ongoing CPI Improvement Programme, the following activities are being carried out:

- Planning of annual market studies in order to update the weighting of products and continue changing the variety specifications.
- Updating of the sample of businesses every two years, which means that the Household Purchase Point Survey must be conducted every two years as well.
- Studies on quality adjustment in the CPI:
 - Definition of criteria for making quality adjustments in the field
 - Dealing with changes in units of measurement, packaging, brand names, or simple technological improvements
 - Developing methodologies for quality adjustments (Hedonic Methods and others)
 - Possible treatment of prices in case of price shocks – bankruptcies – as in the case of natural disasters (droughts), economic shocks (price of oil) or others.

3.2 Remuneration and Labour Cost Indices

In 2001, information will continue to be gathered to calculate the Labour Cost Indicator (CMO) and the Remuneration Index (IR) on the basis of an adjustment made in the current sample. The same methodology will be kept but it will be modified later, after the wage structure is derived from the new survey system. The Wage Structure Survey will be the basis for the system.

3.3 New wage statistics system

After the second quarter, three new surveys will be launched: the Wage Structure Surveys, the Labour Cost Survey, and the Wage Trends Survey.

The Wage Structure Survey will gather information on individual wages in order to develop a worker profile. This will make it possible to establish correlations between wages and certain variables that affect their amount, such as level of education, seniority, age, sex, and type of contract.

The main objectives are to determine not only average wages but also their distribution, and to identify which variables influence the wage structure and how, in order to carry out a more thorough statistical analysis of the indicators.

The Wage Trends Survey will be conducted monthly, the Labour Cost Survey will be annual, and the Wage Structure Survey will take place every four or five years. The Wage Trends Survey is cyclical in nature, while the other two are structural.

4. Economic statistics

4.1. VI National Agricultural Census, 1996/1997 Agricultural Year

The National Statistics Institute carried out the VI National Agricultural Census in April and May of 1997.

The census has made it possible to update information on the universe of the nation's farming and forestry operations, which in turn allowed for the updating of the sampling frame used to compile ongoing agricultural statistics and prepare specific samples to study different aspects of farm activity.

The international census concepts and definitions currently recommended by the 2000 Agricultural Census Programme published by the FAO were taken into account in the census:

The census provides for the profiling of operations using information on installed production capacity in physical terms, encompassing the land, capital, and labour factors. In addition, data were gathered on the results of the farms' operations in the past agricultural year, expressed in terms of land under cultivation and/or production and yield of annual crops.

The census is therefore the main source of detailed statistics at the level of administrative political division, municipality, province, region, and nation. This detailed and reliable information is used by various public and private organizations and institutions to develop the accounts of the farm sector and to conduct analyses, make decisions, and prepare programmes and projects. Moreover, the census enables international institutions to incorporate data on the agriculture and food situation worldwide.

The final results included information from the census that was conducted in advance in the remote areas of the country in 1996. Although the figures from the remote regions correspond to the year prior to when the census was taken in the rest of the country, they were incorporated in the final publication, both the print and electronic versions, for the purpose of obtaining national totals.

The information published on CD corresponds to all of the municipal-level results, including tables that were too extensive to publish in the print version beyond the provincial level.

Applications were designed and installed in the computer network and were connected by a data transmission system covering the entire country during the census. Thus, the preliminary results from each municipality were processed after the census data were digitized and validated right in the field, in a decentralized fashion. This made it possible to deliver preliminary results quickly, only four months after the data were gathered and validated. The publication of the final results took place 12 months after the surveys, in May 1998.

The census was organized on the basis of census areas made up of one or more municipalities, depending on the number of farms estimated in preliminary analyses of existing data (previous census, International Revenue Service rural directory, and other sources such as the Agriculture Ministry). Each census area was placed under the direction of an agricultural scientist, who in turn was guided by a regional census secretary who served as technical chief in each region. At the same time, the regional directors of the INE acted as regional chief executives. Having area chiefs with the corresponding supervisors (most of them professionals) allowed for high-level monitoring and technical supervision throughout the entire data collection and validation period.

4.2 Agricultural Survey

The new Agricultural Survey was designed with a double sampling frame, which consisted of a list frame (extracted from a directory of farmers taken from the VI Agricultural Census) and an area frame (constructed on the basis of updated information on agro-ecological strata, from which those with mostly tillable soil were identified; the farms included in the area sample were selected from these strata).

This system of combined frames made it possible to reduce the sample size to 7,600 farms whose annual crops were measured, with a regional breakdown. The advantage of the new design was primarily the updating of the agricultural strata, which meant the crops were more representative.

The previous design applied between 1984 and 1999 was based on an area sample with weighted segments. A Master Sample was compiled to measure annual production of fruits, grapevines, vegetables, fodder, and livestock. Approximately 30,000 farmers were surveyed. This sample became obsolete as the years went by, especially in the agricultural strata with major urban development, changes in irrigation practices, and expanded forests.

The new Agricultural Survey of Area Under Cultivation is conducted once a year in November and December between Regions III and X. In April and May, the Agricultural Production Survey will be carried out; it will provide production and yield figures for the annual crops included in the sample.

This new Agricultural Survey is the first to be conducted using Computer Assisted Personal Interview (CAPI) technology, which enabled the census-taker to digitize and validate the data on a minicomputer while interviewing the farmer. This considerably reduced computer processing time, and the results were turned in 20 days after the data were gathered.

4.3 Mining Production and Physical Sales Index

The Mine and Quarry Production and Physical Sales Index is compiled based on a census of businesses involved in this sector.

Because it is difficult to distinguish between mining and industrial activities, products that should be measured in indicators of the industrial sector, such as blister copper and copper cathodes, iron pellets, and sodium nitrate, are measured in this index.

Major advancements were incorporated into this index. The base year was moved up to 1999, new products were added to the basket, and in the case of copper, variety indices were developed, since it is the most important product in the basket. The physical sales variable was introduced, businesses were classified according to ISIC Rev. 3, and a computer system was implemented to provide coding assistance.

This index, like all the new products, was developed in keeping with the concept of Integrated Statistics and Indicator Systems. Register information plays a key role when appropriate methods are applied to turn it into statistical data.

The INE and the National Geological and Mining Service (SERNAGEOMIN) have been working together since 2000 to devise a new form and adjust the register information for statistical purposes.

4.4 Annual National Industrial Survey (ENIA) 1999

The Annual National Industrial Survey (ENIA) is designed to measure the performance of industry over the course of one year in order to obtain structural information on businesses with 10 or more employees. For this purpose, an accounting and production analysis is carried out for each manufacturing firm.

The survey consists of the following forms: Business, Main Office, Product, Inputs and Raw Materials, Processing, and Fishing Fleet.

Among the improvements made in this survey are the following:

- New total management approach, which means that every analyst is responsible for gathering, analysing, inputting, and validating the results.
- New data processing platform which allows for monitoring the stages and conditions of the surveys and provides quality and yield indicators, speeding up publication time.
- Each questionnaire is linked in an inter-form validation system, which makes the data more coherent.
- Production data determine the activity classification given to each business. A detailed catalogue and industrial technicians aid in this effort, with the support of public and private institutions in each sector of the manufacturing industry.
- As of 1996, each business and establishment has a Uniform Identification Number and is listed in a directory.

4.5 **Manufacturing Production and Physical Sales Index**

The current Production and Physical Sales Index (IPVF), which is compiled monthly, is based on the annual average for 1989, using a sample of 364 products. Its purpose is to quantify monthly production trends in businesses with 10 or more employees in the national manufacturing industry.

Some products have shown declines in relation to the number of businesses reporting, due to the obsolescence of the base. This is primarily the result of companies going out of business, changing their product line, halting production, etc.

In view of this problem, the sample was updated by applying the methodology of the Production and Physical Sales Index that was used in the base year, 1989, to the information obtained from the 1996 Annual Industrial Survey. The original sample of products in the IPVF is being retained, but for each of them, new businesses have been added that were not included in the IPVF but meet the accumulation cutoff of up to 75% of Gross Production Value in the ENIA for 1996. Some 190 establishments that went out of business have been replaced.

There will be no changes in the weighting until a new methodology has been developed.

And finally, the replacement of old businesses and addition of new ones will keep the sample representative until a new methodology is devised, based on the results of the annual indices calculated according to the latest available ENIA.

4.6 **Technological Innovation Survey**

The INE, in collaboration with other institutions involved in this matter, such as the Technological Innovation Programme (PIT) and the Foundation for Agrarian Innovation (FIA), has carried out two surveys in the manufacturing industry, in 1995 and 1998. It is now preparing a third one, and it also conducted a technological innovation survey in the agriculture and forestry sector in late 1999.

Systematic statistical research in this area is a recent development. Indeed, the regular collection of data on this subject did not begin until the 1980s in OECD countries, even though the theoretical fundamentals had been established by J. Shumpeter in the 1940s, and a number of partial studies were made in the following years. In Latin America, the issue also arose in relation to technology transfer. The first manual on the subject, published by the OECD, did not appear until 1992.

The INE began preparing the first survey with the guidance of the National Institute of Statistics and Economic Studies (INSEE) of France in 1993. The biggest challenge was to adapt the recommendations of the manual to the conditions of a semi-industrialized country such as Chile, which is quite far from the technology frontier in nearly every area. This adaptation process is still going on. Finally, the main tasks currently under way are the expansion of the field of research to other sectors of the economy and the continued improvement of research already being conducted.

4.7 **Standard Building Form**

On the initiative of the Internal Revenue Service (SII), it has been agreed to update the building form to meet the data needs of that agency as well as those of the Housing Ministry, the Central Bank, and the INE, with regard to both the beginning of construction and the completion of the building.

One of the important programmes of the public sector is construction, which requires an information system that enables it to measure building rates in an efficient and timely manner.

The Standard Form is the first step towards building an integrated Information System in the sector, and it also fits in with the concept of modernizing by creating coherent and comparable systems of statistics and indicators for a particular area.

The development of this multipurpose standard form is of great interest to the private sector, because it will yield the following information:

- Standardization of concepts and data among the four public institutions and the private sector.
- Standardization of technology and adoption of new regulations in the Ministry of Housing and Urban Development (MINVU) for the classification of buildings.
- Timely reporting of the statistical information needs of the sector.
- A single form for data collection under the responsibility of the INE, meeting the requirements of all institutions.
- Follow-up on building projects to determine start dates and average duration of construction.
- Inclusion of architects or owners in the self-reporting part of the form, improving the technical quality of the data.

4.8 Retail Trade and Repairs Index

The purpose of this new nationwide indicator is to fill the gap in statistics measuring monthly variations in retail sales and repairs, reflecting trends in this activity. Information on direct employment and the value of inventories will also be sought.

The data collected will be used to devise indicators reflecting monthly, annual, and cumulative variations, which will allow comparisons among the different groups and types of businesses in the sector, and with other short-term indicators.

The businesses in the sector will be able to compare themselves to others in their group and evaluate their performance in relation to that of the entire sector. The index may also be used as an indicator of the sector for National Accounts.

The target population is all business establishments in the domestic retail trade and repairs sector with monthly sales above 3,000 development units (UF) in the activities in question. The study will exclude the following activities: sales of second-hand goods, except for automobiles; sales from mobile units or at fairs; mail-order sales; and repairs of personal products and household appliances.

Companies listed in the 1999 SII Directory were classified in accordance with the ISIC Rev. 3 into seven groups for specialized trade and three for non-specialized trade. The sample consists of 1,075 businesses. In the case of supermarkets, the survey encompasses establishments with three or more cash registers.

The unit of measurement will be total monthly sales without VAT, according to retail product line, the “number of stores” and the “number of days open” in the month in question. This will make for a better analysis.

An important advantage of this indicator is its ability to reflect sales of non-specialized retail firms (department stores, supermarkets, and warehouses) broken down according to different retail product lines. Thus, the following sales indices can be obtained: general retail sales and repairs; non-specialized trade; supermarkets; warehouses; department stores; specialized trade; new automobiles; maintenance and repair of automobiles; automobile parts, components, and accessories; automotive fuel; food, beverages and tobacco; pharmaceutical and medicinal, cosmetic, and toiletry products; textile, clothing, shoes, and leather goods; household appliances, devices, and equipment; hardware, construction materials, and glass; and other products in specialized warehouses.

In addition, the indices for each product line group can be obtained.

4.9 Small and Medium-Sized Enterprise Short-Term Survey

The purpose of this new survey is to gather information on the current circumstances and economic prospects of small and medium-sized enterprises (SME) during the period (six months) immediately before and after the present time. It will cover production and investment, employment and remuneration, prices and margin, and the financial situation (debt).

The research focuses on the universe of businesses that fall within the definition of SME used by the SII, with two additional circumstances due to the nature of the study:

- The forestry and agriculture, finance, government services, international agencies, and two other unidentified sectors are excluded from the study.
- In addition to the SII's definition of "medium-sized enterprise", the factor of annual sales between 50,000 and 100,000 UF corresponding to a "large enterprise" is also included in order to obtain broader coverage in this category.

The SII 1999 Directory was used to develop the sample, using the following eight ISIC groups: mining, industry, EGA, construction, wholesale trade, retail trade, restaurants, and transportation.

The sample covers 2,000 businesses all over the country.

4.9.1 Survey of Environmental Management in Industry

The Ministry of Economic Affairs, Development, and Reconstruction; the Development and Innovation Fund (FDI), through the Technological Research Corporation (INTEC-CHILE); and the INE are conducting the First National Survey of Environmental Management in Industry.

This research marks the INE's first venture into the area of environment and business. The pact accelerated work that had been scheduled for mid-2001.

The main objective is to find out what efforts businesses are making in order to improve environmental action through incorporated technology and the development of training programmes.

Information will also be gathered regarding the difficulties businesses are having in meeting environmental standards and obtaining permits, and regarding the presence of elements such as management systems, plans and procedures for environmental emergencies, methods to reduce residues and/or emissions, and familiarity with environmental standards.

The results of this research will make it possible to evaluate what businesses are doing about environmental issues and eventually to improve public policies and plans in this regard, to the benefit of the entire national community.

This survey took place in January and part of February among a sample of 700 industrial firms, representing 14.5% of those actually included in the ENIA. The process is scheduled to be completed in March of this year.

5. Territorial statistics

The INE has submitted the Programme for the Development of the Regional Statistics System to the National Statistics Commission.

In 2000 the Regional Activity Index (INACER) was completed in each of the country's 12 regions.

In 2001, the Regional Accounts System project has begun. It will compile information on sources and uses of regional economic agents, using a comprehensive accounting frame to consolidate income and spending data. Macro aggregates including the GDP, savings, and investment at the regional level will be obtained.

6. Harmonization of Mercosur-Chile Statistics

Another challenge facing the INE is CE-Mercosur Statistical Cooperation, which has been set up to harmonize and standardize statistical information and to carry out valid comparisons among the signatory countries. The pact covers the following areas: Customs and Domestic Commerce Statistics, Investment Statistics, Service Statistics, Macroeconomic Indicators and National Accounts (macroeconomic indicators for industry and construction), Business Productivity and Competitiveness Statistics, Social Statistics (employment and demography), Classifications and Nomenclatures, Dissemination Policies and Relations with Customers, Large Statistical Information Systems, and Transportation Statistics.

7. Project: Methodological Frame For Producing Quality Statistics

This project's mission is to measure the methodological quality of the INE's statistical products by evaluating the processes involved in each product in the different thematic areas: social, labour, economic, prices, and environmental. Quality standards established at the international level by official statistics offices and international organizations will be reviewed in order to ensure top quality statistics that are relevant, timely, and flexible.

The following results are expected to be achieved:

- Development of a Methodological Quality Procedure Manual to support the personnel who produce statistics for the INE.
- Design, preparation, and implementation of a Diagnostic Survey to Evaluate the Methodological Quality of Products and Processes
- Ongoing Methodological Quality Monitoring and Support System

- Implementation of the project is scheduled for the 2001-2006 period, to cover the production of statistics measured by censuses, samples, and registers, beginning with the study of statistical products obtained by sampling.

In order to diagnose, follow up, and improve current and future statistical production, the following Methodological Quality Indicators have been selected: Relevance, Accuracy, Timeliness, Accessibility, Comparability, Coherence, Currency, and Effectiveness.

The project will be developed using the information gathered in the Diagnostic Survey, which will allow for the measurement of the methodological status of each product in its different processes. The results will then be applied to develop a matrix relating each statistical product to the various quality standards.

If a process corresponding to a product being evaluated falls lower than expected against the quality standard, monitoring will be carried out in accordance with current national and international methodological guidelines, with a view to bringing the process up to acceptable levels and reinforcing the training of statistical personnel in their weak areas.

The project will yield the following results, with repercussions for the INE's Change for Modernization programme:

- Constant feedback through Ongoing Methodological Evaluations of Products and Thematic and Sample Updates.
- Production of Methodological Instruction Manuals to standardize statistical production procedures.
- Creation of a Statistical Production Quality Monitoring and Follow-up System in the INE.
- Publication and dissemination of methodologies and of statistical information that is easily understood.
- Integrated Statistics and Indicator Systems organized by thematic area, both national and international.
- Systems for communicating with customers in order to automatically incorporate their demands for statistical information, and support for dissemination in mega-databases.

**Description of Methodological Improvements and Innovations
by Thematic Area and Product**

Thematic Area and Product	Product Description	Methodological Improvements and/or Changes
1. Demographic statistics		
1.1 Pre-census (2001) for 2002 XVII National Population Census and VI Housing Census	Consists of a listing of buildings, dwellings, and households, plus a register of other activities	<ul style="list-style-type: none"> • Digitized mapping • Inventory of georeferenced construction • Survey of economic activities • Georeferenced and updated digital census mapping • Multidimensional database • Development of new frame for household surveys
1.2 XVII National Population Census and VI Housing Census of 2002	A very important project that will produce a survey of individuals, dwellings, and households in the country, providing information of great use for decision-making	<ul style="list-style-type: none"> • Expansion of the census form with more detailed information on housing, facilities, and services • Expanded questions for individuals on old age, youth, ethnicity, means of commuting to work or school, etc.
2. Labour, social, and cultural statistics in household surveys		
2.1 Labour statistics		
2.1.1 Municipal Employment Pilot Study	Exploratory study to obtain preliminary statistics on the employment situation in 70 municipalities around the country	<ul style="list-style-type: none"> • Development of sampling design to obtain municipal estimations
2.1.2 Monthly Employment Pilot Study	Exploratory study to obtain a monthly prediction of employment statistics at the national level	<ul style="list-style-type: none"> • New operational sampling procedure to obtain national monthly estimations
2.1.3 Working Conditions Survey	To measure employment stability	<ul style="list-style-type: none"> • Further refinement of the concept of job stability by examining types of contract, benefit systems, and healthcare systems for self-employed and employed workers
2.2.1 Pilot Study on Household Internet Use	Exploratory study to obtain information on availability of the Internet in homes	<ul style="list-style-type: none"> • Thematic design with operational concepts that allow for the profiling of households with Internet access in relation to type of user and time of use • Implementation in Regions IV and XIII
2.2.2 Ongoing Family Budget Survey (Central Bank)	To measure consumption expenditure based on the concept of acquired consumption expenditure	<ul style="list-style-type: none"> • Development of a Family Budget Survey of a small sample, making it possible to predict household spending in Greater Santiago
2.2.3 Quality of Life Survey	To provide an Integrated System of Social and Cultural Statistics and Indicators that reflects the current situation and the changing quality of life in Chile	<ul style="list-style-type: none"> • Thematic methodological and sampling design and implementation of an "Omnibus Survey" with a base module and other thematic modules on health, education, etc. • Design and implementation of the 2000 Health Module

Thematic Area and Product	Product Description	Methodological Improvements and/or Changes
2.3 Updating of Area Sampling Frame for Household Surveys	Sampling frame of private homes, generated using data from the pre-census and digitized mapping information	<ul style="list-style-type: none"> To have an updated frame for the selection of sections and homes, updated for 2002
3. Price statistics		
3.1 Consumer Price Index (CPI)	Represents the variation in prices for goods and services consumed by households, and therefore trends in Chileans' cost of living	<ul style="list-style-type: none"> System for adjusting variety-establishment by product Adjustment of sample size by product Adjustment of prices before changes in the quality of products Changes in units of measurement, packaging, brand names, simple technological improvements Implementation of the Constant Improvement Programme Better reflection of seasonal consumption of fruits and vegetables
3.2 Labour Cost and Remunerations Indices	The labour cost index represents the variations in the prices of the labour factor and therefore trends in the employer's labour costs, at the national level. The remunerations index shows the level of remuneration of workers per hour worked, and trends in that regard, at the national level	<ul style="list-style-type: none"> The sample is being adjusted, replacing firms that have gone out of business while maintaining the original representativeness at the subsector and occupational group levels.
3.3 New Wage Statistics System	Consists of three national surveys: the Wage Trends Survey, both short-term and monthly; the Labour Cost Survey, which is structural and annual; and the Wage Structure Survey, which is structural, to be carried out every four to five years. All will contribute to the generation of new indicators.	<ul style="list-style-type: none"> The wage structure survey provides information on individual wages for worker profiling so that correlations can be established between wages and the variables that affect them, including level of education, age, sex, seniority, and type of contract The frame of reference for the new indices is derived from the wage structure reflected in the surveys Register information will be made available in methodological terms to ensure that the system is complete
4. Economic statistics		
4.1 VI National Agricultural Census, 1996/1997 Agricultural Year	To obtain a census of the country's agricultural and forestry operations and the area under cultivation according to soil use. To obtain information for the generation of a sampling frame.	<ul style="list-style-type: none"> Current international conceptual and operational definitions from FAO Information on remote regions Professional and technical capacity at all stages of design and operation Timely results with computing assistance Results available on CD
4.2 Agricultural Survey	Statistics on area under cultivation, production, and crop yield	<ul style="list-style-type: none"> Carried out with double sampling frame, consisting of list frame based on Agricultural Census and area frame, updating agroecological strata Reduction of sample size Greater representativeness of crops through updating of agricultural strata

Thematic Area and Product	Product Description	Methodological Improvements and/or Changes
4.3 Index of Mining Production and Physical Sales	Reveals monthly trends in production and physical sales in the mining sector	<ul style="list-style-type: none"> • Base year changed to 1999 • Measurement of physical sales variable introduced • List of products updated, with two additions • Copper broken down by variety • Establishments classified according to ISIC Rev. 3 • Register data in continued use as a complement • Computer-assisted coding • Register information made available in methodological terms for use in index
4.4 Annual National Industrial Survey (ENIA)	Measures performance of manufacturing industry for one year to obtain structural information on all businesses with 10 or more employees, based on accounting and production analyses conducted in each firm	<ul style="list-style-type: none"> • Application of Total Management System • Data processing platform allowed monitoring of each process and time savings • Inter-form validation system • Detailed catalogues of each industrial group's activity • Incorporation of a Uniform Identification Number for each business • Establishments classified according to ISIC Rev. 3
4.5 Production and Physical Sales Index (IPVF)	Measures monthly changes in production and physical sales in the manufacturing industry	<ul style="list-style-type: none"> • Adjustment of sample based on information from the 1996 ENIA to businesses that fall within the 75% Gross Production Value cutoff
4.6 Technological Innovation Survey: Manufacturing Industry Agriculture and Forestry	Data collected reveals significant characteristics of technological innovation in products, technological processes, etc.	<ul style="list-style-type: none"> • In 1999 the agriculture and forestry sector was added to the Technological Innovation Survey • The possibility of incorporating other sectors is being studied
4.7 Standard Building Form	Gathers information on construction projects, including start date, average duration of construction, and follow-up	<ul style="list-style-type: none"> • Integrated Information System established in the sector under a pact among four institutions (SII, MINVU, Central Bank, and INE) • Register information made available in methodological terms for statistical use
4.8 Retail Trade and Repairs Index	Indicator with national coverage that reveals monthly changes in retail sales and repairs, and therefore trends in this sector. Corresponds to a value index.	<ul style="list-style-type: none"> • New indicator that generates indices at the level of Non-Specialized Trade and Specialized Trade for each product line group • Establishments classified according to ISIC Rev. 3
4.9 Small and Medium-Sized Enterprises (SME) Survey	Collects information on current trends and prospects of SMEs with respect to production, investment, employment, remunerations, prices, margin, and financial situation	<ul style="list-style-type: none"> • The first survey of economic sectors such as mining, industry, EGA, construction, wholesale trade, retail trade, restaurants, and transportation • Sample with national coverage in 2000

Thematic Area and Product	Product Description	Methodological Improvements and/or Changes
4.10 Environmental Management Survey	Data collected allow businesses in the industrial sector to meet environmental standards and management	<ul style="list-style-type: none"> • First national survey on environmental management in industry • Incorporates classification of establishments under ISIC Rev. 3
5. Territorial statistics	Information is gathered to develop a profile of the regions' economic situation and trends. INACER exists in all 12 regions, and in 2001 a project has been launched to create a Comprehensive Accounting System for Regional Accounts	<ul style="list-style-type: none"> • Information on regional situations • Development of Regional Accounts • Expanded coverage of information at municipal level
6. Mercosur-Chile statistics	Coherent, Consistent, and Comparable Statistical Systems will be obtained by coordinating and harmonizing the statistics of the Mercosur-Chile countries. The areas are: Customs and Domestic Commerce Statistics, Investment Statistics, Service Statistics, Macroeconomic Indicators and National Accounts (macroeconomic indicators for industry and construction), Business Productivity and Competitiveness Statistics, Social Statistics (employment and demography), Classifications and Nomenclatures, Dissemination Policies and Relations with Customers, Large Statistical Information Systems, and Transportation Statistics.	<ul style="list-style-type: none"> • Updating of nomenclatures and classifiers in Chile's surveys • Conceptual updating in accordance with current international definitions • Statistics complemented with register information • Updated methodologies using thematic and sampling designs
7. Methodological Frame for Producing Quality Statistics	To measure the methodological quality of the INE's statistical products	<ul style="list-style-type: none"> • First Methodological Quality Diagnostic Survey • Measurement of Quality Indicators by Product and Process • Methodological Quality Follow-up and Updating Programme for statistical products