Methodological Manual
Consumer Price Index (CPI)
Base year 2023

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ACRONYMS AND ABBREVIATIONS

$	Chilean pesos
AACh	Association of Chilean Insurers, Trade Group (Spanish: Asociación de Aseguradores de Chile A.G.)
ABS	Australian Bureau of Statistics
AF	Adjustment Factor
AIC	Akaike Information Criterion
ATC	Anatomical, Therapeutic, Chemical Classification System
BCCh	Central Bank of Chile (Spanish: Banco Central de Chile)
BIC	Bayesian Information Criterion
BLS	U.S. Bureau of Labor Statistics
CASEN	National Socioeconomic Characterization Survey (Spanish: Encuesta de Caracterización Socioeconómica Nacional)
CCIF 2018.CL	Classification of Individual Consumption According to Purpose (COICOP) adapted for Chile
CLI	Cost-of-living Index
CMF	Financial Market Commission (Spanish: Comisión para el Mercado Financiero)
COICOP	Classification of Individual Consumption According to Purpose
CPI	Consumer Price Index
CPIX	Consumer Price Index minus fresh fruit and vegetables and fuels
CPIX1	Consumer Price Index minus products classified as meat, fresh fish, regulated tariffs, indexed prices, and financial services
CSV	Comma-separated values
DANE	National Administrative Department of Statistics of Colombia (Spanish: Departamento Administrativo Nacional de Estadística, Colombia)
EC	European Commission
ECLAC	Economic Commission for Latin America and the Caribbean
EEP	Public Entertainment Survey (Spanish: Encuesta de Espectáculos Públicos)
ENE	National Employment Survey (Spanish: Encuesta Nacional de Empleo)
EUROSTAT	European Statistical Office
FISIM	Financial intermediation services indirectly measured
HBS	Household Budget Survey
IBGE	Brazilian Institute of Geography and Statistics (Portuguese: Instituto Brasileiro de Geografia e Estatística)
ICHA	International Classification for Health Accounts
ILO	International Labour Organization
IMF	International Monetary Fund
INE	National Statistics Institute
INE Spain	National Statistics Institute of Spain
INEGI	National Institute of Statistics and Geography of Mexico
INEI	National Institute of Statistics and Informatics of Peru

INSEE	National Institute of Statistics and Economic Studies (French: Institut National de la Statistique et des Études Économiques)
IPRO	Product Index (Spanish: Índice de Producto)
ISAPRE	Private healthcare insurance institution (Spanish: Institución de Salud Previsional)
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
IVAR	Index of Variety (Spanish: Índice de Variedad)
IVE	Index of Variety-establishment (Spanish: Índice de Variedad Establecimiento)
IVS	Index of Sales of Services (Spanish: Índice de Ventas de Servicios)
JAC	Civil Aeronautics Board (Spanish: Junta de Aeronáutica Civil)
LF	Link factor
MICLA	Micro-index of Class (Spanish: Micro Índice de Clase)
MIDIV	Micro-index of Division (Spanish: Micro Índice de División)
MIGRU	Micro-index of Group (Spanish: Micro Índice de Grupo)
MINEDUC	Ministry of Education (Spanish: Ministerio de Educación)
MIPRO	Micro-index of Product (Spanish: Micro Índice de Producto)
MISCL	Micro-index of Subclass (Spanish: Micro Índice de Subclase)
NA	National Accounts
NAF	Net adjustment factor
NPI	Non-profit institution
NPISH	Non-profit institutions serving households
OECD	Organisation for Economic Co-operation and Development
OIT	International Labour Organization (Spanish: Organización Internacional del Trabajo)
PDF	Portable document format
RCeI	Civil Registration and Identification Service
Rserver	R software server
RUT	Tax identification number (Spanish: Rol Único Tributario)
SEC	Superintendency of Electricity and Fuels (Spanish: Superintendencia de Electricidad y Combustibles)
SNA	System of National Accounts
SRS	Simple Random Sampling
Statcan	Statistics Canada
UF	Development Unit (Spanish: Unidad de Fomento)
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organization
UTM	Monthly Tax Unit (Spanish: Unidad Tributaria Mensual)
WB	World Bank
WHO	World Health Organization
XLS	XLS extension of Excel files in its versions from 97 to 2003

CHAPTER 1 – INTRODUCTION

The National Statistics Institute (INE) presents the **Methodological Manual of the Consumer Price Index (CPI)**[1] for the new **base year 2023=100**[2].

The construction of the CPI 2023 follows the guidelines and recommendations of the Organisation for Economic Co-operation and Development (OECD)[3], the Consumer Price Index Manual (ILO et al., 2020), and the best international practices of other national statistical offices, and it maintains the main technical and methodological characteristics used in the construction of the CPI base year 2018=100. The construction of the basket of goods and services uses the expenditures of households as reported in the IX Household Budget Survey (HBS)[4], which was conducted between October 2021 and September 2022, and it uses information from national accounts and other sources.

The Manual was written for those who wish to learn about the statistical concepts and methods that underlie the construction of the CPI. The Manual also seeks to be a guide for answering frequently asked questions about the methodologies and operations of the CPI[5].

The Manual begins with a presentation of the methodological background, including the history and development of the CPI, as well as a summary of changes and improvements made to previous baskets and the definition of the objectives of the CPI. Next, the reference framework, the conceptual framework, and national and international references are discussed. Following are a presentation of the techniques used in the statistical design, the methodologies of price collection and data processing, and an analysis of the results of these processes.

In addition, the scope of the results is considered in order to identify the elements to publish, the dissemination strategy to follow, and the management of the legal framework and data accessibility.

At the end of the Manual is a glossary of terms, a bibliography, and annexes, which include the CPI basket 2023=100 and other information.

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[1] For the remainder of this document, the terms Methodological Manual of the Consumer Price Index (CPI) and Manual will be used interchangeably.

[2] In addition, the terms 2023 CPI, CPI 2023=100, and CPI base year 2023=100 will be used interchangeably.

[3] On 11 January 2010, Chile signed an accession agreement with the OECD, officially becoming the thirty-first member and the first Latin American country among its members.

[4] For more information on the survey, see https://www.ine.gob.cl/estadisticas/sociales/ingresos-y-gastos.

[5] For any questions, please contact the Transparency and Public Outreach Unit at the following e-mail address: ine@ine.gob.cl or visit INE's website https://www.ine.gob.cl/ under the section "Atención al usuario/a".

CHAPTER 2 – METHODOLOGICAL BACKGROUND

2.1 Definition and purpose of the CPI

The Consumer Price Index is an economic indicator whose objective is to measure the monthly variation in prices of a representative basket of goods and services[6]. Its variation is crucial for understanding the development of prices in the national economy.

The representativeness of the CPI basket is achieved by monitoring the prices of products (goods and services) of a basket characteristic of household consumption patterns. The more accurate the selection of these products in relation to the consumption of the households studied, the more representative the index will be. The basket must therefore be regularly updated. This basket is representative of the internal or domestic spending of households in the sixteen regional capitals and their conurbations within the country's borders.

In addition to being constructed to represent the structure of household expenditures, the CPI is also designed to ensure monthly comparability of the average price changes in the economy. To meet the second objective, the following conditions must be met: (a) the products in the basket and their weights must remain fixed for five years; (b) the replacements of varieties and establishments must be comparable to ensure that they are of equal quality; and (c) the variations from the previous month must be published, without exception, within the first eight days of the following month and they are not subject to revision[7].

2.2 Uses of the CPI

The CPI (the index and its variation) used as a measure of inflation and deflation has several purposes, among which are the following:

– To be an input for the Central Bank of Chile (BCCh) for defining the country's monetary policy rate.
– To determine the variation of the *Unidad de Fomento* (UF)[8] and the *Unidad Tributaria Mensual* (UTM)[9].

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[6] Because prices of the CPI are collected on a monthly basis, it is not possible to calculate price variations for specific dates outside the monthly period.

[7] The CPI is calculated, published, and disseminated each month by INE on the institutional website (www.ine.gob.cl) according to an annual calendar established in the statistical agenda. Once published, the figures become official, and they are not retrospectively amended.

[8] The UF is a unit of account that is adjusted according to the monthly variation of the CPI. It was created by Decree No. 40 of the Ministry of Finance, dated 20 January 1967. Since 1990, the BCCh has determined its value in accordance with Law No. 18.840 (published in the Official Gazette on 10 October 1989), Article 35, number 9, and its method of calculation is contained in Chapter II.B.3 of the Compendium of Financial Regulations.

[9] The UTM has been defined in Chile as an amount of money expressed in pesos and determined by law (Decree Law No. 830, published in the Official Gazette on 31 December 1974). The UTM is continually updated by the variation of the CPI, and it is used as a tax measure.

- To bring to present value or to deflate final consumption expenditure of households or other economic series in national accounts.
- To index income[10], given that inflation is an important factor in the adjustment of wages.
- To adjust or update monetary values from one time period to another[11].
- To adjust tariffs for various basic services that use the CPI in their polynomial of calculation (such as electricity and health services).

2.3 History and development of the index

Since 1928, the Consumer Price Index has measured the variation in the prices of a basket of goods and services representative of household consumption[12]. These baskets account for the country's economic, technological, social, and cultural development by measuring changes in consumption habits reflected in the variation of their prices.

It should be noted that the monthly CPI calculation involves a specialized team composed of data collectors, data-entry clerks, supervisors, and analysts. The price data of the products come from more than 6,500 establishments throughout the country, including neighborhood stores, street markets, supermarkets, commercial stores, schools, universities, medical centers, hardware stores, telecommunications companies, banks, electricity distribution companies, and households with domestic service.

Prices are collected both in the field, through on-site collection during visits to the establishment, and in the office, where data are gathered at INE offices using administrative records, capturing data from the websites of the sample of establishments, making telephone calls[13], and receiving electronic forms completed by respondents.

Throughout the **ninety-five years of CPI publication**, the basket of goods and services has been continually updated to adapt to new household consumption habits. This development can be seen in table 1, which summarizes the general information on the baskets since their beginning.

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[10] Indexation is a procedure by which monetary values are modified in proportion to the change in prices over a given period.

[11] The Methodologies section of the institutional website (https://www.ine.gob.cl/estadisticas/economia/indices-de-precio-e-inflacion/indice-de-precios-al-consumidor) provides a description (in Spanish) of how the adjustment is calculated.

[12] Since 2009, the CPI has been representative at the national level, whereas before that year it was representative of Santiago (since base year 1928) or of Greater Santiago (since December 1957).

[13] This method is the preferred collection technique for households that provide data on rentals and domestic service.

Base Period	Period of validity	Coverage	No. of products/ groups or divisions	Source of Weights	Validity
March 1928=100 (**)	Apr 1928– Dec 1957	Santiago	42 products/ 4 groups	Survey of the staff of the General Directorate of Statistics	29 years
December 1957=100	Jan 1958– Dec 1969	Greater Santiago, urban area	112 products/ 4 groups	I HBS (Nov 1956– Oct 1957)	12 years
December 1969=100	Jan 1970– Dec 1978	Greater Santiago, urban area	305 products/ 4 groups	II HBS (Sep 1968– Aug 1969)	9 years
December 1978=100	Jan 1979– Apr 1989	Greater Santiago, urban area	348 products/ 4 groups	III HBS (Dec 1977– Nov 1978)	11 years
April 1989 =100	May 1989– Dec 1998	Greater Santiago, urban area of Santiago, Puente Alto, and San Bernardo	368 products/ 5 groups	IV HBS (Dec 1987– Nov 1988)	9 years
December 1998=100	Jan 1999– Dec 2008	Greater Santiago, urban area of Santiago, Puente Alto, and San Bernardo	483 products/ 8 groups	V HBS (Aug 1996– Jul 1997)	10 years
December 2008=100	Jan 2009– Dec 2009	Greater Santiago, urban area of Santiago, Puente Alto, and San Bernardo	368 products/ 12 divisions	VI HBS (Nov 2006– Oct 2007)	1 year
2009=100	Jan 2010– Dec 2013	15 regional capitals and their principal conurbations	368 products/ 12 divisions	VI HBS (Nov 2006– Oct 2007)	4 years
2013=100	Jan 2014– Dec 2018	15 regional capitals and their principal conurbations	321 products/ 12 divisions	VII HBS (Nov 2011– Oct 2012)	5 years
2018=100	Jan 2019– Dec 2023	16 regional capitals and their principal conurbations	303 products/ 12 divisions	VIII HBS (Jul 2016– Jun 2017)	5 years
2023=100	Jan 2024– Dec 2028	16 regional capitals and their principal conurbations	283 products/ 13 divisions	IX HBS (Oct 2021– Sep 2022)	5 years

Notes:

(*)   There are estimates of the CPI for periods between January 1923 and March 1928. The indicator was then known as the Cost-of-Living Index for Santiago and the year 1913 was used as the base period. The weights of the fifty-three products of the basket were determined by the judgement of experts and were divided into six groups of equal weightings. The prices were obtained from the index of wholesale prices, and therefore the indicator is not, strictly speaking, a CPI.

(**)   For the March 1928 base, the indicator was known as the Cost-of-Living Index for Santiago.

Source: Own elaboration.

As can be seen in the table above, the first CPI measurement was published in 1928 (**March 1928=100**), and it was known at that time as the Cost-of-Living Index for Santiago. The index reflected the variation in prices of a representative basket of goods and services consumed by the families of sixty-eight officials of INE, which was then known as the General Directorate of Statistics.

Among the first items included in the basket were French bread, red wine, cigarettes, ponchos, firewood, charcoal, candles, and streetcar fare. This base period lasted for twenty-nine years, making it the longest-lasting base period.

The construction of the base **December 1957=100** made important advances that were due to the commencement of the Household Budget Survey (HBS), a survey that has continued to the present. The HBS has been used as a reference to determine the goods and services of the CPI basket and their relative weights. The technical assistance of the United Nations

led to the establishment of specific criteria for selecting the goods and services of the basket and to the expansion in the sample of surveyed establishments. As a result, the indicator was renamed the Consumer Price Index.

The 1957 basket incorporated cola drinks and canned products as well as men's, women's and children's clothing.

The number of products in the base **December 1969=100** increased by nearly 200 to reach 305, among which were mortgage payments and electrical appliances such as refrigerators, washing machines, and sewing machines. Blood and urine tests were added to the miscellaneous group of products, and spelling, Spanish, and mathematics books were added to the education group. Additionally, a miscellaneous group was created that includes radios, televisions, record players, and other products.

With the base period **December 1978=100**, the basket became more detailed. Among the new products were private housing, water heaters, and teapots. Clothing included new products such as parkas, women's leather boots, and sneakers. Among the new products of this basket were X-rays, automobiles, motorcycles, bicycles, license plates, subway tickets, and color televisions.

The base period **April 1989=100** incorporated a minimum expenditure criterion for goods and services in the CPI basket. In addition, the number of groups grew from four to five: food, housing, clothing, transport and communications, and miscellaneous goods and services. In the food group, new products included *manjar* (sweetened milk spread), avocadoes, and pisco. Also included was interprovincial bus fare between Santiago and Viña del Mar and from Santiago to Concepción. Other new products included photographic film, dog food, identity cards, and university preparation courses.

With the publication of the base period **December 1998=100**, the analytical indices were introduced. The purpose of the new indices was to provide information complementary to the overall index. This change of base period incorporated quality adjustment methods in the field (i.e., the replacement of comparable varieties) and the treatment for the change of unit of measurement, packaging, and brands. Among the new products were refuse collection, computers, photographic cameras, and sightseeing tours.

The base period **December 2008=100** was established as a transition basket because a new CPI basket with nationwide geographical coverage was to come into effect the following year. The 1999 Classification of Individual Consumption According to Purpose (COICOP) system was incorporated into this base period. This base period incorporated such products as residential internet connection services; air transport services; women's, children's, and men's sportswear; and services provided by recreational and sports facilities.

The following year, in the construction of the **base year 2009=100**, the standards provided by the OECD were adopted to facilitate the international comparability of measurement, which led to some significant changes in the index.

The HBS extended its coverage to the urban areas of all the capital cities and their conurbations, thus broadening the representativeness of the CPI by considering the consumption habits of all the regions of the country. The 2009 CPI was also the first to use

a calendar year rather than a specific month as base period, and it therefore increased representativeness by capturing seasonal patterns within the price structure. In addition, Chile has been committed to updating the CPI every five years since the implementation of the 2009 CPI. Among the products incorporated into the basket were home alarm services, contraceptives, condoms, exercise machines, and birthday party services.

In the **base year 2013=100**, INE introduced a checklist-type price collection form for most products of the Division of Clothing and Footwear and quality adjustments using hedonic models for the products televisions, computers, cameras, and mobile telephone equipment. INE excluded price adjustments from the calculation of regulated services, such as electricity[14], and introduced seasonality for certain products, notably those in the Division of Clothing and Footwear.

For the construction of the basket, external sources of information were used to adjust the expenditures of the VII HBS, such as national accounts (for adjustments to underreported expenditures in Division 2, Alcohol and Tobacco) and administrative records (to transform gross expenditures into net expenditures, as in the case of secondhand motorcars, games of chance, and insurance). New products of the 2013 CPI included shuttle services, gyms, energy drinks, mobile broadband, and nurseries.

For the **base year 2018=100**, INE incorporated a series of changes to improve the precision and quality of the index. These changes were mainly focused on the use of hedonic models for quality adjustments and the incorporation of weights below the product level. INE introduced techniques for collecting records directly from some companies (such as scanner data) and automated the monthly CPI bulletin, thus optimizing production and contributing to greater reliability and consistency in the communication of data. Furthermore, the product of online subscription services was added to the basket.

For the new CPI **base year 2023=100**, INE adopted the 2018 COICOP, whose main changes are in the number of divisions and their content. In addition, INE intensified the use of scanner data as well as search and analysis for new automated collection methods, and it extended the use of quality adjustments through hedonic models for products related to technological devices and household appliances. Among the new products of the 2023 basket are other cereal flours, vegetable beverages, breaded meat, delivery of goods and parcels, and technological devices and accessories.

The following figure shows the evolution in the number of products of each CPI basket from 1928 to date.

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[14] Price adjustments are excluded from the CPI calculation because they affect the level of household income but not the rates in effect at the time the service is consumed.

FIGURE 1. DEVELOPMENT OF THE NUMBER OF PRODUCTS OF EACH BASKET

March 1928 = 100	42
December 1957 = 100	112
December 1969 = 100	305
December 1978 = 100	348
April 1989 = 100	368
December 1998 = 100	483
December 2008 = 100	368
Year 2009 = 100	368
Year 2013 = 100	321
Year 2018 = 100	303
Year 2023 = 100	283
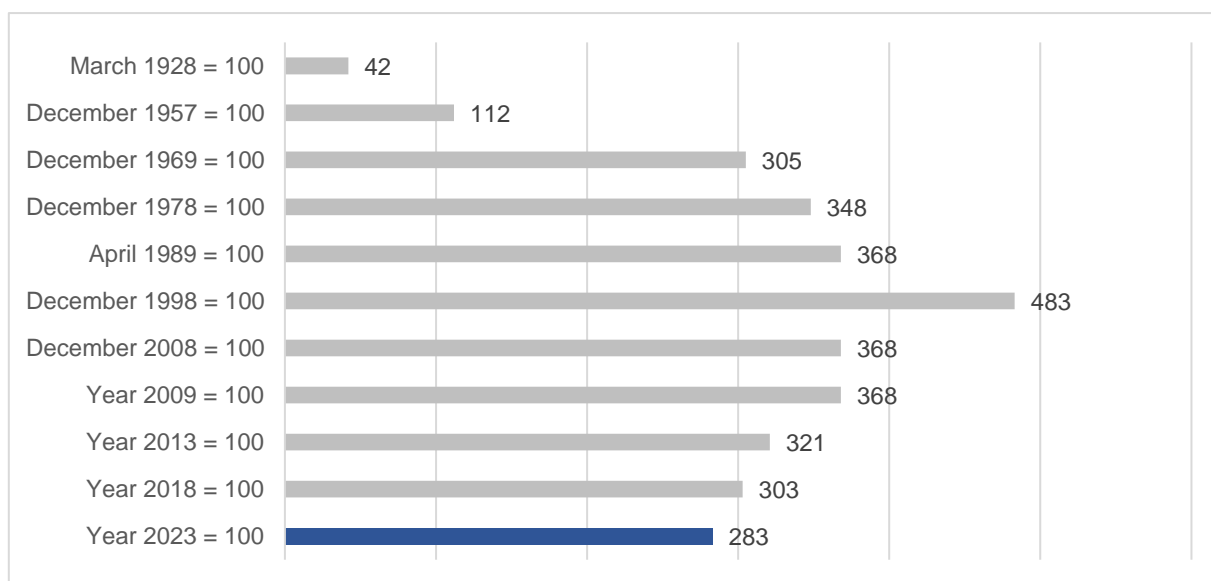
Source: Own elaboration based on historical CPI baskets.

As shown in Figure 1, the number of products in the CPI basket has steadily fallen since the 2009 change of base year. The fall is the result of changes in the approach to its construction.

The purpose of the new criteria is to represent groups of products better, rather than to extensively detail each one of them. Another purpose of the new criteria is to increase operational efficiency in the monthly collection of prices.

Because product prices remain in the basket as varieties, the new approach does not necessarily mean that prices of products are no longer collected[15]. For example, the following 2009 products were combined to form a single product "toys" in the 2013 basket: toy cars, action figures, parlor games, educational games, dolls, and wheeled toys for boys and girls.

2.4 Changes and improvement in the 2023 version of the indicator

The series of changes made to the CPI between the previous base year (2018=100) and the current base year (2023=100) includes updating the index to the current household consumption structure and introducing technical and operational improvements. The objective of these changes is to improve the representativeness, relevance, efficiency, and reliability of the indicator.

These methodological improvements have six focuses, which are briefly described below:

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[15] Variety is the level below product, and its data is not published. However, variety is used in the collection of prices.

(a) **New version of the COICOP in 2018.** INE has adapted the 2018 version of the international classification (CCIF 2018.CL[16]), which improves the specification of the goods and services of the basket.

(b) **Review of exclusion list.** Following the recommendations of the Economic Commission for Latin America and the Caribbean (ECLAC), the list of expenditures excluded from the construction of the CPI basket weights was revised. The main exclusion was expenditure on secondhand motorcycles. For the change of base year, the expenditure is considered in the construction of weights as an expenditure within the CPI product of motorcycles[17].

(c) **Price-collection optimization.** Following international experience, INE has expanded the use of data obtained by non-traditional collection methods for the 2023 CPI basket. Specifically, INE made great efforts to increase the number of records from scanner data, which enables it to process more information for the monthly calculation of the indicator. When the 2023 base year is in force, INE will evaluate the expanded use of automated price collection directly from company websites (a non-traditional collection technique known as web scraping). When INE began its use of the new base year, this technique was implemented for the collection of prepaid mobile telephone equipment.

(d) **Improvements and new adjustments to the weights.** The adjustment for underreporting was incorporated into the weighting for the product of games of chance. At the same time, the treatment of external sources for this adjustment was improved by incorporating monetary income data from the National Socioeconomic Characterization Survey (CASEN) of 2022 and the projection of households from the National Employment Survey (ENE) of 2022. In some exceptional cases, additional adjustments were made to the weights of the products most affected by the COVID-19 pandemic.

(e) **Criterion of permanence.** The purpose of this criterion is to ensure that the goods and services that make up the basket of the indicator can be continuously collected during the period of validity of the current basket.

(f) **Development of new hedonic models.** During the life of the 2023=100 basket, the use of new hedonic models has been proposed for a set of technological products, household appliances, and clothing varieties.

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[16] For more details (in Spanish) on the CCIF 2018.CL, see https://www.ine.gob.cl/docs/default-source/buenas-practicas/clasificaciones/ccif/clasificador/ccif_2018-cl.pdf?sfvrsn=e99de8da_2.

[17] Net expenditure adjustments are applied to the expenditure on secondhand motorcycles.

CHAPTER 3 – REFERENCE FRAMEWORK

3.1 Conceptual framework

The theoretical basis of the CPI is found in index number theory, especially in the concept of fixed-base price index[18].

The CPI is often used as an indirect indicator of the cost of living, although the two concepts are significantly different. A Cost-of-Living Index (CLI) evaluates the expenditure necessary for households to maintain a consistent level of satisfaction of needs. Its objective is to answer the question: What is the cost of maintaining the same standard of living over time, compared to a reference period, under current market prices?

This cost is represented as the minimum level of expenditure required to achieve the same standard of living or level of utility under current prices as in the reference period. Because this minimum cost cannot be observed directly, the CLI can only be approximated. The development of the CLI requires measuring the expenditure for a basket of goods and services while maintaining the level of utility or well-being. However, household well-being depends not only on measureable objective factors but also on subjective factors that cannot be measured or considered solely through price concepts.

On the other hand, the CPI is an index of the acquisition cost (prices) of goods and services. The CPI thus has the advantage of eliminating the concept of utility, enabling a more practical approach to monitoring over time.

For the monthly compilation of the CPI, the prices of goods and services of a fixed basket representative of household spending are regularly collected. This price collection mainly uses the **acquisitions approach**[19], in which the total value of goods and services acquired domestically during the period is recorded. Prices are recorded with this approach regardless of whether the goods and services were fully or partially consumed at the time of acquisition; regardless of whether the payment was through cash, check, electronic transfer, or credit card; and regardless of whether the payment incurs a financial liability[20].

The CPI is constructed as a Laspeyres Index, which measures the change in the cost of a fixed basket of goods and services for a base period. This index may precede the reference period by a few years and the price reference period by many years.

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[18] The fixed-base concept means that, the basket of a defined number of products and their weights remains unchanged for a given period (five years in Chile). In contrast, chained indices change the basket and weights each year.

[19] The acquisitions approach is commonly adopted when the CPI is used as a macroeconomic indicator. The two alternatives are the uses approach and the payments approach. The uses approach observes the consumption of goods and services actually consumed by a household to satisfy its needs and wants. For the CPI, the payments approach involves the actual expenditures incurred by households to access consumer goods and services. This approach is often selected when the main objective of the index is to adjust compensation or income.

[20] When a good or service that is financed with credit is acquired, two economic transactions take place: (i) the acquisition or sale of the good or service and (ii) the creation of a financial obligation, namely, interest payable.

The CPI basket used for the calculation of the index seeks to reflect the structure of household preferences within its geographical coverage, and it remains fixed during the reference period of the indicator, which in Chile is five years.

A fixed-basket price index is a simple, convenient index that is widely used internationally. Because the only cause of variation in expenditure of a fixed basket is a change in prices, the concept can easily be understood. These fixed quantities are the pattern of expenditure and consumption of the base period, and they therefore show the structure of preferences of households during the period.

Nevertheless, the convenience of a fixed-basket index is often inversely related to its precision. The loss of precision mainly occurs because product weights anchored to a base period do not capture the changes in products consumed by households[21], which leads to an overestimation in the representation of market price behavior.

The more time between reference periods, the greater the probability that the fixed-basket index will accumulate biases compared to the basket actually consumed by households. If the basket is used for a limited time (after the reference period), the impact can be greatly reduced. Therefore, a periodic rebasing is recommended. In Chile, rebasing is done every five years to reduce the overestimation of the CPI.

3.2 International and national framework

At the international level, most statistical offices prepare their consumer price indices following the recommendations and guidelines established in the Consumer Price Index Manual: Concepts and Methods[22]. This Manual, published in 2020, was developed through the collaboration of various international statistical organizations and institutions, including the International Labour Organization (ILO), the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), the Statistical Office of the European Commission (EUROSTAT), and the World Bank (WB).

The experience of statistical offices in producing the CPI, as documented in their methodological manuals, provides the opportunity to identify best practices and, if appropriate to the country's circumstances, implement the most widely used practices at the international level. For example, CPI manuals from various national statistical offices have been reviewed, including Canada (Statistics Canada, Statcan), Mexico (Instituto Nacional de Estadística y Geografía, INEGI), United States (U.S. Bureau of Labor Statistics, BLS), Australia (Australian Bureau of Statistics, ABS), France (Institut National de la Statistique et des Études Économiques, INSEE), Spain (Instituto Nacional de Estadística, INE Spain), Brazil (Instituto Brasileiro de Geografía y Estadística, IBGE), Colombia (Departamento Administrativo Nacional de Estadística, DANE), and Peru (Instituto Nacional de Estadística e Informática, INEI).

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[21] These changes in consumption may arise from economic, social, and technological factors, as well as from the introduction of new products into the market, changes in consumer tastes, changes in fashions, alterations in the demographic and employment structure of society, changes in real incomes, or variations in relative prices.
[22] The publication can be accessed at the following address: https://www.ilo.org/global/statistics-and-databases/publications/WCMS_761444/lang--en/index.htm.

The CPI manuals reviewed include recommendations and practices regarding methodological considerations that affect the calculation of an index as well as its scope, basic conceptual framework, construction of weights, selection of sources, sampling design, and price collection, among other technical points.

Additionally, INE has considered the cumulative experience of its own price teams.

3.3 Regulatory framework

INE is charged with producing and disseminating the official statistics of Chile as well as providing reliable and accessible information to users for taking decisions and acquiring greater knowledge of the reality of the country.

Articles 29 and 30 of Law 17.37419 regulate the collection of information for the indices as follows:

Article 29: The National Statistics Institute, fiscal and semi-fiscal bodies, state enterprises, and all their respective officials may not disclose facts connected with any persons or entities acquired in the course of carrying out the duties of their offices.

Article 30: Statistical data may not be published or disseminated with expressed reference to the persons or entities to which they directly or indirectly refer, if prohibited by the parties to which reference is made.

The strict maintenance of such prohibitions constitutes "statistical secrecy". Any infraction thereof shall incur a penalty described in article 247 of the Criminal Code. The penalty will in all cases include custodial sentencing.

CHAPTER 4: CHANGE OF BASE YEAR CPI 2023

In accordance with the standards established by the OECD, the CPI is rebased every five years. The purpose of rebasing is to update the basket of goods and services to reflect changes in consumption patterns and to incorporate methodological improvements.

The CPI consumption basket is defined as a given set of goods and services (represented as "products"), whose weights are defined by the product's share of consumption in the structure of household expenditure. In order for this basket to be as representative as possible, it must be updated regularly.

The construction of the CPI basket (i.e., the determination of the representative products and their weights) requires the analysis and processing of the expenditures captured in the Household Budget Survey, which are complemented with other administrative records. For the CPI 2023=100 basket, the expenditures reported by the IX HBS (which was conducted between October 2021 and September 2022) are used as the main input in determining the products and weights of the basket.

In addition to the construction of the basket, rebasing includes the calculation of the reference series for computing the twelve-month variations of the first year in which the new basket comes into effect (2024).

Finally, when the new base year comes into effect, a linked series is required in order to provide a continuous series of the index.

4.1 Use of the HBS as a source of information for the CPI

The purpose of the HBS, a socioeconomic survey whose period of application is twelve consecutive months, is to capture seasonal variations in spending and thus represent its annual structure. The first version of the HBS was conducted between 1956 and 1957[23].

The IX HBS covers the sixteen urban areas of the regional capitals of the national territory, and its complex sampling design can provide consistent and statistically significant estimates in geographical terms for its estimation areas. The IX HBS is representative at the national level and for four macro-zones: north, middle, south, and greater Santiago.

The IX HBS introduced the following improvements over its VIII version:

- Sixteen new communes throughout the country[24].
- Adaptation of the Chilean Classification of Individual Consumption according to Purpose (CCIF 2018.CL) to the 2018 version for the organization of expenditure.
- The use of mobile capture devices for the collection of household expenditure data.
- The implementation of automated coding for the International Standard Classification of Occupations (ISCO).

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[23] For more information, see https://www.ine.gob.cl/docs/default-source/encuesta-de-presupuestos-familiares/metodologia/ix-epf-(octubre-2021---septiembre-2022)/metodologia-ix-epf.pdf?sfvrsn=e2db6cfe_6.

[24] The new communes are Tierra Amarilla, Graneros, Machalí, Olivar, Requínoa, Maule, Coronel, Hualqui, Lota, Tomé, Vilcún, Puerto Varas, Lampa, Calera de Tango, Talagante, and Peñaflor.

- The use of collaborative environments in the processing of collected data (Rserver and Git).
- The improvements to the imputation methodology for income and expenditures related to financial services.

The databases of the IX HBS are used in the construction of the CPI 2023=100 basket. These databases are the following:

- **Database of expenditures:** This database includes information on household expenditures for products and services, according to the CCIF 2018.CL, which was used in the IX HBS.
- **Database of persons:** This database contains information at the household and individual level. It also contains socio-demographic characteristics of household members in relation to education and occupational status, primary and secondary housing tenure, total household expenditure, and household income and its sources.
- **CCIF IX HBS:** This database presents the CCIF 2018.CL used in the IX HBS.

4.1.1 Classification of Individual Consumption According to Purpose and its structure applied to the CPI

To code the expenditures of the IX HBS, INE is guided by the COICOP. This classification system provides homogeneous categories of goods and services according to their function or purpose and belongs to a set of classifications known as functional classifications, which are part of the System of National Accounts (SNA). The first version of the COICOP dates back to 1923 and its most recent version is from 2018, which updates the 1999 version.

Specifically, the IX HBS uses a version called CCIF 2018.CL, which is a Chilean adaptation of COICOP carried out by INE with the support of external institutions. The Chilean classification maintains the overall structure of the 2018 COICOP. However, as part of the adaptation process, several modifications were made to better reflect the structure of national consumption and the differing requirements of the classification.

The CCIF 2018.CL consists of fifteen divisions with the following features:

(a) The first thirteen divisions correspond to the household final consumption expenditure classification, which are the divisions used in the formation of the CPI basket.
(b) Divisions 14 and 15 refer to "individual consumption expenditure of non-profit institutions serving households (NPISHs)" and "individual consumption expenditure of general government", respectively. Neither item is part of household expenditure coverage, and they are therefore excluded from the CPI basket.

The principal changes between the 1999 version and the CCIF 2018.CL are as follows:

1. **Separation of goods from services.** Whenever possible, classes and subclasses are created for services, such as repair, maintenance, installation, or product rentals.
2. **Proposal up to the fourth level of classification (subclasses).** This proposal seeks to improve international comparability.

3. **Classification by durability.** Products are distinguished as durable, semi-durable, and non-durable goods at the subclass level.
4. **Division 6, Health.** This division was restructured in accordance with a proposal from the World Health Organization (WHO). The new structure aligns the CCIF 2018.CL with the International Classification for Health Accounts (ICHA) and its family of classifications.
5. **Division 7, Transport.** This division includes the transport of goods.
6. **Division 10, Education.** This division was revised to be in line with the latest (2011) version of the International Standard Classification of Education (ISCED).
7. **Revision of Divisions 8 and 9.** These divisions were revised as follows:
    a. **Division 8.** This division was renamed "Information and Communication" to better represent its contents, which now include equipment for sending and receiving information that was previously part of Division 9 (e.g., Televisions and Sound Equipment).
    b. **Division 9.** The name of this division changed from "Recreation and Culture" to "Recreation, Sports, and Culture".
8. **Disaggregation of Division 12, Miscellaneous Goods and Services.** This division was divided into two new divisions because of the heterogeneity of the contents of the division in the previous CPI.
    a. **Division 12.** This new division includes expenditure for "Insurance and Financial Services".
    b. **Division 13.** This division is called "Personal Care, Social Protection, and Miscellaneous Goods and Services".

The structure of the CPI 2023=100 basket is guided by the CCIF 2018.CL classification through it use of the IX HBS. The designation of descriptions and the number of elements in the divisions, groups, classes, subclasses, and products do not strictly follow the classification, because in some cases they were modified for continuity with the structures of the CPI basket 2018=100. In addition, the number of products in the basket is significantly lower after the application of product selection criteria described in section 4.2 below.

The table below compares the number of elements in each level of the structure of the CCIF 2018.CL and the CPI 2023=100 baskets.

TABLE 2. COMPARISON OF THE STRUCTURES OF CCIF 2018.CL AND CPI 2023=100

Structure	CCIF 2018.CL(*)	CPI 2023=100
Division	13	13
GROUP	64	46
CLASS	159	99
SUBCLASS	319	172
PRODUCT	1111	283

(*): This version excludes all elements of Divisions 14 and 15.
Source: Own elaboration based on the IX HBS.

Although "product" is the lowest level of the CCIF 2018.CL, the CPI basket classification includes lower levels, such as varieties and variety-establishments (the elementary aggregation), as can be seen in the following figure.

FIGURE 2. STRUCTURE OF THE CPI 2023=100
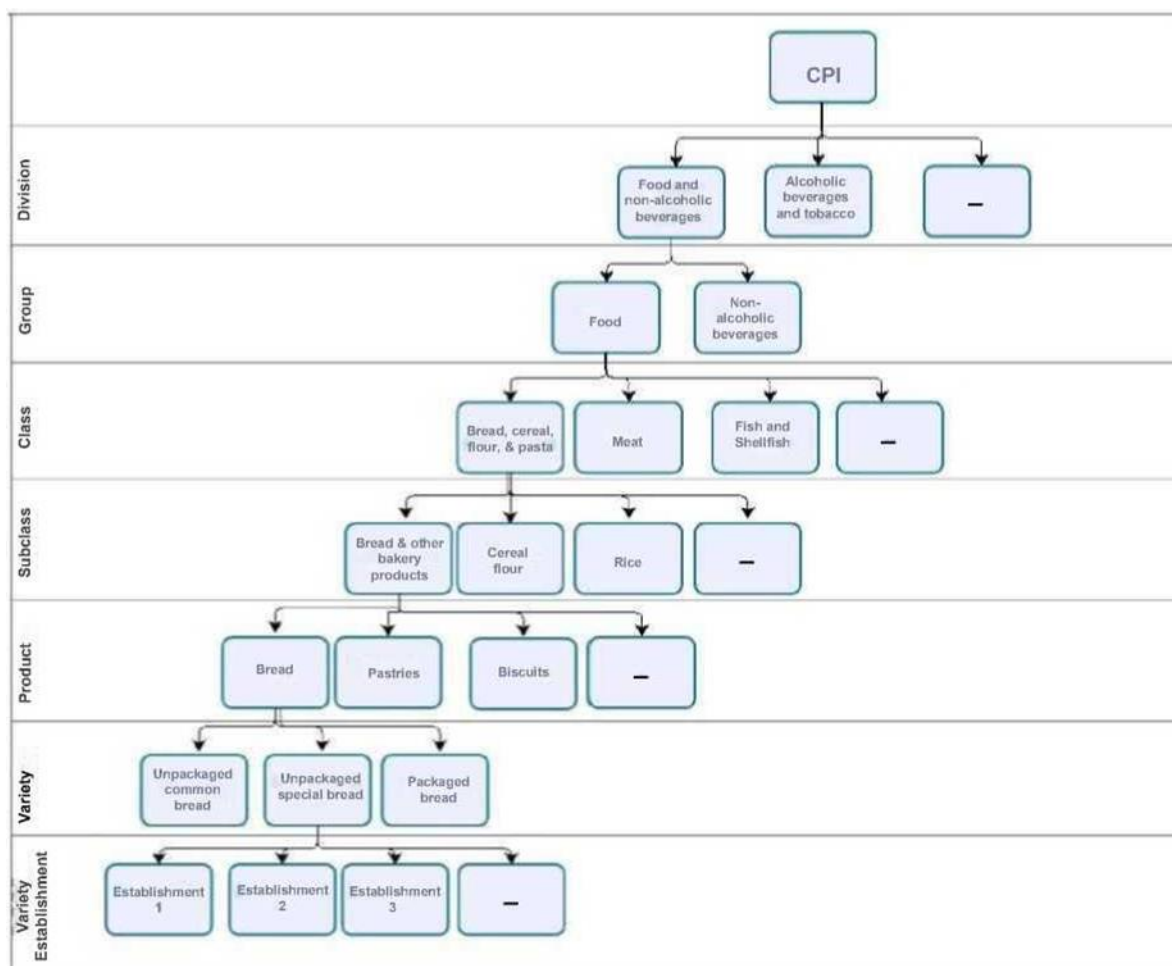
Source: Own elaboration.

The two levels below product have been created for operational collection purposes, and they are not available to the public. The basket is thus published from the product to the division level.

4.1.2 Expenditures included in the construction of weights

The conceptual framework for which expenditures to include in the CPI can be found in the Manual of the System of National Accounts 2008.

According to the SNA, all expenditures associated with monetary payments made within the country should be included in the construction of the basket. In general, the expenditures on products included in the construction of the CPI basket are as follows:

- Household purchases of goods and services for final consumption.
- Rental expenditures actually paid by households.

- Transactions in which the final price includes indirect taxes (for example, VAT, tobacco tax, specific fuel tax, stamp tax, and alcohol tax).
- Administrative fees for services received, such as obtaining a driver's license, amateur radio license, and certificates.
- The purchase of secondhand motorcars by households in the northern and southern extremes of the nation under the duty-free-zone regime, the marketing margins of secondhand vehicle dealerships, the purchase of secondhand vehicles from companies and from the public sector, and the tax on transfers of motor vehicles[25].
- Financial expenditures (commissions and administration and operating expenses) associated with mortgage loans, consumer loans, lines of credit, bank credit cards, commercial cards, and opening and maintaining checking accounts.
- Club or society memberships that grant the right to use their facilities.
- Tax-deductible insurance, car insurance, and home insurance.

4.1.3 Expenditures excluded from the construction of weights

Although the HBS and CPI share a conceptual framework (System of National Accounts), the CPI covers a narrower range of the expenditure. Some expenditures recorded in the IX HBS are therefore excluded from the CPI.

The purpose of the index is to present the changes in prices recorded in monetary transactions of the country's consumers. These transactions exclude any type of investment, transfer, or non-monetary expenditure, such as barter transactions, expenditure in goods and services received as payments or income in kind, expenditures in the production of goods and services for own consumption, and expenditures related to the services of dwellings occupied by their owners (imputed rentals). In this vein, for example, the European Statistical Office uses the concept of "monetary expenditure in household final consumption" in its compilation of the index.

In line with international recommendations and practices, whenever expenditure that is not intended for household consumption is identified, it should be excluded from the conceptual framework in the construction of the indicator.

The excluded costs are as follows:

- Uniforms of Non-Profit Institutions.
- Imputed rentals.
- Goods that by their nature can be considered an investment and not an expenditure.
- Expenditure on sports betting and casinos[26].
- Life insurance because it is an investment.

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[25] The tax on transfers of motor vehicles must be included because it is a legal requirement for the sale and purchase of a secondhand motor vehicle.
[26] Reported expenditure on casino admissions is not excluded.

- Financial expenditure on interest (corresponding to Financial Intermediation Services Indirectly Measured, FISIM)[27].
- Administrative fees for pension funds.
- Tips and allowances.
- Goods and services that are purchased in person abroad.
- Recurrent expenditures in non-profit institutions (NPIs) that do not generate any rights for consumers.

4.1.4 Additional treatments

Because the IX HBS changed the way expenditure on medicines and education is reported, adjustments were needed in these divisions to show expenditure with the CPI 2018=100 structure.

These changes are detailed below:

- **Medicines:** The information on medicines collected in the IX HBS is assigned to a CCIF 2018.CL code based on its use, not its chemical nature. This modification to the latest version means that the expenditure on a medicine may be classified under more than one CCIF 2018.CL code if households report differing uses. To maintain the comparability of Division 6, the previous ATC classification (Anatomical, Therapeutic, Chemical classification system) must be followed. The details of the expenditure of all the medicines had to be reviewed and recoded when appropriate to ensure consistency with the structure of the base CPI basket 2018=100.
- **Education:** The IX HBS incorporates the United Nations Educational, Scientific, and Cultural Organization (UNESCO) International Standard Classification of Education (ISCED 2011), which has not yet been implemented in the local education system, but it will be in effect from the 2026 school year onwards. For the CPI basket 2023=100, ISCED-97 will therefore continue to be used to ensure consistency with the structure of the base CPI basket 2018=100.

4.2 Product selection criteria and preliminary weights

Once the database has been cleaned according to the list of expenditures (included and excluded) and the additional treatments have been carried out, product selection begins.

At this stage, the expanded expenditures of each of the CCIF 2018.CL codes available in the HBS are analyzed to determine whether they meet the criteria to become a product. The following are the selection criteria:

(a) Minimum weighting of 0.02% in total household expenditure.
(b) Presence of product expenditure in 4 out of 5 quintiles according to per capita disposable income.

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[27] Interest payments consist of several components that are difficult to break down, which makes it virtually impossible to estimate them realistically and reliably. Given the complexity of interest flows and the fact that different flows must be treated differently, the international recommendation (ILO) is not to include interest payments in the CPI.

(c) Operational feasibility of price collection (operational criterion).

(d) Evaluation of the continued presence of the product in the market until the basket is rebased (to avoid monitoring products that may become obsolete during the five-year validity of the basket).

After this process, each CCIF 2018.CL spending code will correspond with a product of the CPI basket, which can be completed or redistributed. (A CCIF 2018.CL code corresponds to more than one CPI code.) With this information, preliminary weights can be calculated at the product, subclass, class, group, and division levels[28].

4.3 Adjustments to product weights

Following international recommendations on the construction of the CPI, once the products in the basket have been selected, the weights are adjusted in order to convert the gross expenditures into net expenditures and correct them for underreported expenditures.

Weights for the products secondhand vehicles, insurance, and games of chance should be adjusted because the HBS collects such data using the gross expenditure criterion while the CPI requires expenditures to be net (ILO et al., 2020). For this purpose, information from administrative records is used to subtract income from expenditures and thus transform them into net expenditures.

Division 2 of Alcoholic Beverages and Tobacco should also be adjusted because these expenses are usually underreported in Household Budget Surveys (ILO et al., 2020). Following a similar logic, an adjustment for underreporting has been incorporated into the 2023=100 CPI for the product of games of chance.

Finally, given the date of collection of the IX HBS and the potential impact of the COVID-19 pandemic and income shocks on household expenditure patterns, the rebasing of the CPI has made exceptional adjustments to expenditure to isolate these effects.

The following sections delve into the methodology for adjusting the expenditures in the product weights of the CPI basket.

4.3.1 Net expenditure on purchase of secondhand vehicles

In order to refine expenditures on secondhand motorcars and motorcycles[29] so that transfers between households are excluded and only the expenditure set out in point 4.1.2 is included, it is necessary to estimate and separate the components involved in their net expenditure. This breakdown considers the following expenditures by type of acquisition:

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[28] The weights of levels above product are calculated as the sum of the aggregates that compose it. To calculate the weight of a class for example, the sum of the subclasses contained in that class is calculated.

[29] The 2023 change of base year includes the adjusted expenditure of secondhand motorcycles in the CPI basket, while the previous version did not. The incorporation of this expenditure follows the recommendations of ECLAC.

1. Vehicles purchased in extreme north and south of the country under the duty-free-zone regime because they are imported vehicles[30]: total acquisition expenditure.
2. Vehicles purchased in automotive dealerships: expenditure in sales margin.
3. Vehicles transferred between households within the country: only the expenditure on transfer tax (1.5%).

The sources used for the estimation of the expenditure and construction of weights are as follows: IX HBS (INE), Structural Survey of Commerce 2021 (INE), Short-term Survey of Commerce 2022 (INE), and Registration of Motor Vehicles of the Civil Registration and Identification Service (RCeI).

The mechanism for calculating the adjustment factor is detailed below as is the information used in each step. The same method is applied to secondhand motorcars and motorcycles (which is a variety of the product of motorcycles).

TABLE 3. ITEMS WITH ADJUSTMENTS FOR SECONDHAND VEHICLES

Structural Survey of Commerce	Calculations
Expanded sales of vehicles	(1)
Expanded sales of NEW vehicles	(2)
Expanded sales of SECONDHAND vehicles	(3)
Expanded costs of vehicles	(4)
Expanded costs of NEW vehicles	(5)
Expanded costs of SECONDHAND vehicles	(6)

Ratio of secondhand vehicle sales made in automotive dealerships to new vehicle sales (%)	$(a) = (3)/(2) \cdot 100$

Sales margin for vehicles (%)	$(b) = [(1) - (4)]/(4) \cdot 100$
Sales margin for NEW vehicles	$(c) = [(2) - (5)]/(5) \cdot 100$
Sales margin for SECONDHAND vehicles (%)	$(d) = [(3) - (6)]/(6) \cdot 100$

Expenditure on NEW vehicles as reported in the HBS	(7)
Estimated expenditure on secondhand vehicles that are sold in automotive dealerships	$(e) = [(a) \cdot (7)]$
Sales margin of automotive dealerships for secondhand vehicles	$(f) = [(d) \cdot (e)]$
Expenditure on SECONDHAND vehicles in regions with duty-free-zones[31]	(8)
Percentage of secondhand vehicles in regions with duty-free zones (%)	(9)
Expenditure on secondhand vehicles purchased in the far north or far south	$(g) = [(8) \cdot (9)]$

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[30] Article 21 of Law 18483, the Automotive Statute, prohibits the import into Chile of secondhand vehicles, except when they are imported into duty-free zones.

[31] Chile's duty-free zones are located in the Region of Arica y Parinacota, the Region of Tarapacá, the Region of Aysén, and the Región de Magallanes y Antártica Chilena.

Structural Survey of Commerce	Calculations
Expenditure on secondhand vehicles purchased and sold between households	$(h) = (11) - (e) - (f)$
Expenditure on SECONDHAND vehicles as reported in the HBS	(11)
Transfer tax (%)	(12)
Transfer Tax Amount	$(i) = (h) \cdot (12)$
TOTAL NET EXPENDITURE ON SECONDHAND MOTORCARS FOR CPI 2023=100	$(j) = (f) + (g) + (i)$
ADJUSTMENT FACTOR USED FOR VALUE REPORTED IN HBS (%)	$(k) = (j)/(11)$

Source: Own elaboration based on data from the IX HBS, Civil Registration and Identification Service (RCeI), Short-term Survey of Commerce (INE, 2022), and the Structural Survey of Commerce (INE, 2021).

Finally, the adjustment factors are applied to the weights of the product secondhand motorcars and the variety secondhand motorcycles of the product motorcycles.

4.3.2 Net expenditure on insurance

Information of the Statistical Synthesis 2022, prepared by the Association of Insurers of Chile A.G.[32], was used to create an adjustment factor for the transformation of gross expenditure into net expenditure.

This information contains the total amount of income attributable to direct premiums[33] and losses paid for the years 2020, 2021, and 2022 for the types of insurance included in the construction of the CPI[34]. Using the average of the years 2020–2022, the adjustment factor (AF) is estimated as the percentage of consumer expenditure (people and households) per sector, which is calculated as follows:

$$\text{AF}_i^{insurance} = \left(\frac{1}{N} \sum_{i}^{N} \frac{Direct\ Premiums_i - Direct\ Loss_i}{Direct\ Premiums_i} \right) \cdot 100$$

Where,

i: The type of insurance.

N: The number of years.

The factor obtained for each branch is used directly in the weight of the CPI product of insurance for its adjustment.

4.3.3 Underreporting of expenditure on alcohol and tobacco.

According to empirical evidence and international literature, some expenditures are considered sensitive and are not reported in household surveys, because household

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[32] For more information, see https://portal2.aach.cl/biblioteca/#publicaciones.

[33] Direct premiums are the income from sales of insurance by the entity, minus cancelations and refunds in the contract. The figures relate to the premiums sold from 1 January to the closing date of the financial statements.

[34] Fire and related insurance, vehicle insurance, liability insurance, theft insurance, relief insurance, and other insurance.

spending is socially stigmatized, for example, spending on alcohol and tobacco consumption (ILO et al., 2020).

In order to correct underreporting, preliminary information from the national final consumption accounts of households at 2022 current prices (specifically data associated with the Division of Alcoholic Beverages and Tobacco) is compared with the IX HBS expenditure of the same division. Because the SNA has national coverage while the coverage of IX HBS is narrower (see section 4.1), SNA data must first be adjusted to make it comparable. For this exercise, the adjustment factor was the ratio of monetary income of households in the communes of the IX HBS to total monetary income of households in the communes at the national level. For this purpose, 2022 CASEN data were used to obtain the result that the households of the IX HBS represent 75.2% of the total monetary income of the households of the country.

Then, SNA spending on Alcoholic Beverages and Tobacco was multiplied by the factor calculated with CASEN data and divided by the estimated number of households nationwide projected by the 2022 National Employment Survey, allowing for rescaled data.

With both comparable sources of information, the adjustment factor is determined by the relationship between the monthly expenditure per household on Alcoholic Beverages and Tobacco from SNA and the monthly expenditure reported under this item in the IX HBS.

$$AF_{Division\ 2} = \left(\frac{Average\ monthly\ expenditure\ per\ household, SNA}{Average\ monthly\ expenditure\ per\ household, IX\ HBS} \right) \cdot 100$$

The adjustment factor obtained is at the division level; however, with additional information provided by the Central Bank of Chile, it was disaggregated to a lower level of groups, thus obtaining adjustment factors for the Group Alcoholic Beverages and the Group Tobacco. These factors apply directly to the weight of the products of the groups in the CPI basket.

4.3.4 Net expenditure and underreported expenditure on games of chance

Expenditures on games of chance are collected in the IX HBS, and, like expenditures on alcohol and tobacco, they tend to be underreported by households. Therefore, two types of adjustments need to be applied: net adjustment and underreporting adjustment.

For the **Net Adjustment Factor** (NAF), the percentage of real return of lottery-card consumers (a product variety of games of chance)[35] is calculated with information from the income statements of the companies Lotería de Concepción and Polla Chilena de Beneficencia of the years 2020, 2021, and 2022, which were reported to the Financial Market Commission (CMF).

$$NAF_{games\ of\ chance} = 1 - \left(\frac{Amounts\ paid\ for\ prizes}{Gross\ income} \right)$$

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[35] The NAF is the ratio between the sum of the prizes won by consumers and the total amount they spent on them.

On the other hand, for the **Adjustment for Underreporting**, the information of the rescaled gross income of the mentioned companies (particularly the information of the period 2022) is compared with the expenditure of the IX HBS.

The gross income of the companies mentioned is multiplied by the factor previously calculated with CASEN data (75.2%). This amount is then divided by the estimated number of households at the national level projected by the 2022 National Employment Survey.

The adjustment factor is determined by the ratio of the estimated monthly household expenditure on games of chance from external sources (estimated with gross income as a proxy variable) to the monthly expenditure reported under this item in the IX HBS.

Finally, both adjustments are combined as presented below and applied to the weight of the CPI product of games of chance.

$$\text{AF}_{games\ of\ chance} = \left(\text{NAF}_{games\ of\ chance} \cdot \frac{estimated\ average\ monthly\ expenditure\ per\ household}{average\ monthly\ expenditure\ per\ household, IX\ HBS} \right) \cdot 100$$

4.3.5 Further adjustments resulting from COVID and income shocks

Given that the IX HBS was conducted between September 2021 and October 2022, it is highly likely that the expenditures collected from the survey were affected by the pandemic and income shocks. Adjustments to the basket were therefore necessary to avoid reflecting the expenditure structure resulting from these shocks in the future calculation of inflation.

International experience suggests using national accounts[36] to adjust basket weights. In Chile, when the 2023 CPI was constructed, no final data from national accounts were available for the period covered by the IX HBS. Furthermore, because no other country in the world was found to have made adjustments to mitigate the effect of the pandemic on its weights, a unique methodology was developed for the Chilean circumstances.

The analysis was especially aimed at products that were a priori affected by the pandemic, for example, products related to mobility restrictions, limited capacity in buildings, and health. In addition, products affected by government policies in terms of monetary transfers to households, such as durable goods, were considered.

For the list of selected products, detailed analyses were carried out using external sources. Thus, researchers could discern whether variations in consumption preferences were a direct consequence of measures implemented during the pandemic or whether they indicated actual changes in population consumption patterns. The focus was on understanding not only the immediate impact of the pandemic on consumer habits, but also on identifying possible lasting transformations in consumer behavior.

The external sources used in the analysis were as follows:

- Index of Commercial Activity (IAC) – INE

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[36] In December 2020, Eurostat published the document "Guidance on the compilation of HICP weights in case of large changes in consumer expenditures", which is a guide on how to reflect the impact of COVID on chain-linked index weights.

- Index of Sales of Services (IVS) – INE
- Number of Driver's Licenses – INE
- Number of School Transport Vehicles – INE
- Film Statistics – INE/Ministry of Cultures, Arts, and Heritage
- Public Entertainment Survey (EEP) – INE/Ministry of Cultures, Arts, and Heritage
- Air Traffic Statistics in Chile – Civil Aeronautics Board (JAC)
- Statistics in Early Childhood Education – Ministry of Education Study Center

These sources provided an additional and complementary perspective to the data collected in the IX HBS, thus enabling a more complete and accurate assessment of consumption trends during the period before, during, and after the pandemic.

The time series of the reported bases were analyzed in order to identify whether any adjustment was required in the expenditure reported in the IX HBS.

Excluded from the set of products selected to evaluate the application of adjustments were those whose consumption patterns, as indicated by external sources and their analysis, reveal permanent changes in consumer and consumer preferences. In other words, it was determined that these variations are not solely attributable to the temporary impact of the pandemic on expenditures related to these products. This decision is based on detailed statistical analyses that distinguished between temporary fluctuations and lasting consumption trends, thus ensuring the integrity and precision of the adjustments.

Once the products requiring adjustments because of the pandemic were identified, various adjustment mechanisms were explored, and three options were selected:

Option 1: Use the product weight of the second half of the IX HBS[37]

This option applies to products whose level of consumption during the period of the IX HBS was identified as being affected in the first six months of collection, but returned to previous (and subsequent) levels of consumption in the second six months of the survey. In these cases, INE chose to use information closer to the trends observed in external data sources. Data from the second six months of the IX HBS were used, a period further from the effects of the pandemic and thus less affected by the health crisis. To this end, the weight constructed using the complete IX HBS was replaced by the product weight that used data from only the second half of the survey. Seasonal products were excluded from this option.

Option 2: Use the CPI-deflated expenditure of the product from the VIII HBS[38]

This option was chosen for products in the CPI basket whose expenditure did not reach expected levels according to data of the IX HBS. At the same time, these products showed no evidence of changes in spending patterns compared to those observed in the VIII HBS. In these cases, INE chose to use the expenditure information reported in the VIII HBS, which

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[37] Second half refers to the six months from April to September 2022.
[38] The data were collected from July 2016 to June 2017.

was previously adjusted to reflect price variations over time[39]. These data were deflated by the price variation of each product, and they were used to replace the expenditure reported in the IX HBS.

Option 3: Do not adjust the weight

INE decided not to make adjustments when, according to the data, the level of consumption was not affected during the IX HBS collection period. This option also applies when it is inferred that the variation in the weight represents a lasting change in the consumption pattern, that is, when it was determined that the variation is not solely attributable to the temporary effects of the pandemic.

After the application of the methodology, thirty-seven products were adjusted, and a basket was obtained that minimizes or smooths the effects of the pandemic and transitory income on the expenditure structure.

While the limitations of the proposed methodology are assumed, the methodology was presented to the OECD, which acknowledges that it achieves the desired outcomes according to available data.

Adjusted CPI products are presented in detail in Annex 1, next to the method chosen for adjustment.

4.4 Division weights of the CPI 2023=100 basket

Once all the previously indicated adjustments were made, the 2023 basket consisted of 283 products.

Below are the weights of the 2023=100 CPI basket at the division level.

TABLE 4. DIVISION WEIGHTS OF THE CPI 2023=100

DIVISION	Weight, CPI 2023=100 basket (%)
1. Food and Non-Alcoholic Beverages	22.15348
2. Alcoholic Beverages and Tobacco	3.68125
3. Clothing and Footwear	2.90040
4. Housing and Basic Services	16.76332
5. Household Equipment and Maintenance	6.18583
6. Health	8.21206
7. Transport	13.45108
8. Information and Communication	6.64634
9. Recreation, Sports, and Culture	4.75354
10. Education	4.19831
11. Restaurants and Accommodation Services	6.22047
12. Insurance and Financial Services	1.10487
13. Miscellaneous Goods and Services	3.72905

Source: Own elaboration.

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[39] To deflate expenditure, the price variation between the central month of the VIII HBS (December 2016) and IX HBS (March 2022) were used.

The complete basket of the CPI base year 2023=100 can be found in Annex 2.The basket consists of 13 divisions, 46 groups, 99 classes, 172 subclasses, and 283 products, as shown in the following table:

TABLE 5. COMPONENTS OF THE CPI 2023=100 (QUANTITY)

Divisions	Groups	Classes	Subclasses	Products
1. Food and Non-Alcoholic Beverages	2	15	47	81
2. Alcoholic Beverages and Tobacco	2	5	5	6
3. Clothing and Footwear	2	4	10	23
4. Housing and Basic Services	4	10	11	15
5. Household Equipment and Maintenance	6	11	22	38
6. Health	4	7	11	23
7. Transport	4	11	20	25
8. Information and Communication	2	8	8	9
9. Recreation, Sports, and Culture	8	14	20	25
10. Education	4	4	5	10
11. Restaurants and Accommodation Services	2	2	2	4
12. Insurance and Financial Services	2	2	2	2
13. Miscellaneous Goods and Services	4	6	9	22
TOTAL	46	99	172	283

Source: Own elaboration.

The following table shows the new products[40] that entered the 2023 basket base and products of the 2018 basket that have been excluded from the construction of the new basket.

TABLE 6. NEW PRODUCTS AND ELIMINATED PRODUCTS

DIVISION	Products	Products entering the basket	Products leaving the basket
1	Other cereal flours	x	
1	Breaded meat	x	
1	Vegetable beverages	x	
1	Plant-based meat substitutes	x	
1	Nutritional supplements	x	
5	Office furniture	x	
5	Garden and camping furniture	x	
5	Vacuum cleaners	x	
5	Other major household appliances	x	
5	Nails and screws	x	

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[40] The Methodologies section of the website: https://www.ine.gob.cl/estadisticas/economia/indices-de-precio-e-inflacion/indice-de-precios-al-consumidor describes (in Spanish) an additional set of products that have been included in the current basket as independent products, even though they already existed as varieties in the 2018 basket. According to the expenditure reported in the IX HBS, these varieties of the 2018 basket satisfied the selection criteria to be included as products in the new basket.

DIVISION	Products	Products entering the basket	Products leaving the basket
6	Assistive devices for hearing and communication	x	
6	Orthopedic items	x	
7	Delivery of goods and parcels	x	
8	Technological devices and accessories	x	
9	Equipment for games and recreation	x	
9	Celebration articles	x	
1	Flavorings for milk		x
3	Clothing fabrics		x
3	Articles for clothing repair		x
5	Irons		x
7	Lubricants and oils for motorcars		x
8	Fixed-line telephone services		x
9	Photographic cameras		x
9	Printers		x
9	Digital storage devices		x
9	Birthday party services		x
9	Photographic processing services		x
12	Electric razors and hair removal machines		x
12	Sunglasses		x
12	Photocopy services		x
12	Membership in professional organizations		x

Source: Own elaboration.

The rest of the products in the 2023 base year CPI basket are products that remain from the previous basket. Some of the remaining products use the same descriptions as in the previous basket; some use a new description; and some products have been combined with others[41].

4.5 Macro-zone weights

Based on the data collected in the IX HBS and for selected products of the CPI 2023=100 basket, the product weights for each macro-zone are calculated. These weights remain fixed for the entire life of the basket.

Weights are determined according to their share in household-reported expenditure on products of the basket in each of the Chile's four macro-zones. These weights are used to calculate the CPI in the elementary-aggregates phase, which enables price changes to be assigned to the overall index in a manner proportional to the expenditure patterns of the macro-zones established in the IX HBS.

Despite the existence of weights at the macro-zone level from which representative baskets could be created, the sampling design of CPI price collection permits representative results at only the national level.

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[41] The Methodologies section of the website: outlines the products of the 2018 basket with modified descriptions as well as the products that were combined to form new products of the 2023 basket.

4.6 Calculation of the reference series

The CPI 2023=100 basket gives the official variation of the index as of January 2024, but the collection of prices of varieties that make up the products must begin from January 2023. These prices are used to construct the reference series of the CPI from which comparisons can be made over time.

Reference series are used only for economic analysis and not for readjustment. In other words, the 2023-based referential indices are not official[42], because in 2023 the CPI variations were calculated and published with the 2018=100 base that was then in use.

The referential series is not published during the price collection year, but it is provided to users on the INE website when the rebased index comes into effect. For the change of base year 2023=100, the referential series will be published in February 2024.

4.7 Linking of the series

Each change of base year involves modifying the products and basket weights, which means that each set of indices must be calculated over a period with a particular basket that is not strictly comparable to the previous ones. Thus, a discontinuity of the index timeline occurs. However, from a practical point of view, if changes of time must be compared, a continuous series of the index is required.

These temporal breaks of the index are resolved by the linking method, which transforms the indices of previous base periods to the level of the new base, which has been done at the overall index year since the base year 2009. When linking the series, the officially published variations must be maintained.

The CPI series, available from March 1928 to the present, exhibits a break in 2009 because two important variables were modified with the change of base period: geographical coverage[43] and the reference period of the index[44].

Because of these changes, it is not methodologically advisable to link series prior to 2009 with subsequent changes of base year. However, for analytical purposes, an extensive series over time is often required, so INE provides users two series for the overall CPI:

(a) The linked series of the index between March 1928 and December 2009, based on December 2008=100.
(b) Linked series of the index since January 2010, based on 2023=100.

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[42] The characteristics a new index must have in order to be considered official are as follows: (a) it must have a value for a certain period, (b) it must permit the calculation of the monthly variation, and (c) it must permit the calculation of twelve-month variations.

[43] Until December 2009, when the December 2008=100 base was in force, the geographical coverage of the index was Greater Santiago. With the CPI base 2009=100, geographical representation expanded to a national coverage that represented the fifteen regional capitals and their conurbations. With the modification of the administrative division of the country with Law No. 21.033 (published in the Official Gazette on September 5, 2017), the XVI region of Ñuble was created.

[44] The base period changed from a month (December 2008=100) to a year (2009=100).

It should be noted that, because the CPI is not corrected and the published monthly variations are official, INE did not make the series methodologically comparable prior to 2009.

To link the 2023=100 CPI series with the 2018=100 CPI (covering the period between January 2019 and December 2023), the link factor (LF)[45] is defined as follows:

$$link\ factor\ (LF) = \frac{CPI_{Base\ year\ 2023}^{Dec\ 2023}}{CPI_{Base\ year\ 2018}^{Dec\ 2023}}$$

The link factor above rescales the level of the 2018=100 based indices to the level of the 2023=100 indices by multiplying the link factor by each of the monthly values of the index of the previous base, which results in the CPI series with the new base 2023=100[46].

For further details on the linked series, see annex 4.

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[45] $CPI_{Base\ year\ 2023}^{Dec\ 2023}$ The value of the index in December 2023 in the reference series of the base 2023=100.

[46] This linking is available for the historical series of CPI from 2010 to 2023 (base 2018=100). To obtain the index for the month of December 2009, the published price change for the month of January 2010 is anchored to the level of the index for that month.

CHAPTER 5 – STATISTICAL DESIGN

The statistical precision of a CPI depends both on its ability to represent the structure of household expenditure for various goods and services in a basket and on the statistical design of collecting the prices of these products.

The processes that shape and condition the statistical design begin with the set of methodological and conceptual definitions according to the type of index and the economic phenomenon to be measured. They conclude with the selection of the price collection technique that best represents the manner of household purchases and that optimizes operational efficiency of statistical production processes.

To determine where the prices of these products will be collected for the calculation of the index, some outlets must be selected from the universe of establishments, a decision that is based on criteria such as representativeness. The number of prices to collect every month for each product is determined according to the weight of the products in the basket and the variability of the prices of the varieties of which they consist.

5.1 Type of index

The CPI is an index that tracks monthly prices for a basket of goods and services whose products and expenditure structure remain fixed for five years. This basket, with its products and vector of weights, is the basis for the monthly calculation of the price index, which is a Laspeyres Index.

A Laspeyres Index is calculated by multiplying the relative price of a product by the weight of that product according to information from a previous period. It is known as an index of fixed weights because the weights remain unchanged during the life of the basket. For further details of the temporal scope of the index, see section 5.4.

The Laspeyres Index is calculated as follows:

$$P_{Laspeyres\ type} = \frac{\sum_{i=1}^{n} p_i^t q_i^0}{\sum_{i=1}^{n} p_i^0 q_i^0} = \frac{\sum_{i=1}^{n} \left(\frac{p_i^t}{p_i^0}\right) p_i^0 q_i^0}{\sum_{i=1}^{n} p_i^0 q_i^0} = \sum_{i=1}^{n} \left(\frac{p_i^t}{p_i^0}\right) s_i^0$$

And:

$$s_i^0 = \frac{p_i^0 q_i^0}{\sum_{i=1}^{n} p_i^0 q_i^0}$$

Where,

p_i^t: Price in period t of the good or service i.

p_i^0: Price in period 0 of the good or service i.

q_i^0: Quantity in period 0 of the good or service i.

s_i^0: Weights in the period 0 of the good or service i.

The index is based on acquisitions approach, where the full price of a product purchased within the country is recorded, regardless of whether it has been fully or partially consumed, or whether payment is made in cash or by check, credit card, or any other means.

5.2 Target population (reference population)

The target population is defined as all establishments in all regional capitals and their conurbations within the borders of Chile where people purchase final consumer goods or services as detailed in the following section.

5.3 Coverage and geographical disaggregation

The CPI has national coverage, so results are constructed and disseminated at the national level only.

The 2023 basket covers the urban areas of the sixteen regional capitals and their conurbations, which include sixty-two communes, and CPI prices are collected within the same geographical scope. The details of the geographical coverage of the CPI are shown in the table below.

TABLE 7. GEOGRAPHICAL COVERAGE OF THE CPI

Region	Regional capital and conurbations
Region of Arica y Parinacota	Arica
Region of Tarapacá	Iquique and Alto Hospicio
Region of Antofagasta	Antofagasta
Region of Atacama	Copiapó
Region of Coquimbo	La Serena and Coquimbo
Region of Valparaíso	Valparaíso, Viña del Mar, Quilpué, Concón, and Villa Alemana
Region of Libertador General Bernardo O'Higgins	Rancagua
Region of Maule	Talca
Region of Ñuble	Chillán and Chillán Viejo
Region of Biobío	Concepción, Chiguayante, Penco, San Pedro de la Paz, Talcahuano, and Hualpén
Region of La Araucanía	Temuco and Padre Las Casas
Region of Los Ríos	Valdivia
Region of Los Lagos	Puerto Montt
Region of Aysén del General Carlos Ibáñez del Campo	Coyhaique
Region of Magallanes y de la Antártica Chilena	Punta Arenas
Metropolitan Region of Santiago	Santiago, Cerrillos, Cerro Navia, Conchalí, El Bosque, Estación Central, Huechuraba, Independencia, La Cisterna, La Florida, La Granja, La Pintana, La Reina, Las Condes, Lo Barnechea, Lo Espejo, Lo Prado, Macul, Maipú, Ñuñoa, Pedro Aguirre Cerda, Peñalolén, Providencia, Pudahuel, Quilicura, Quinta Normal, Recoleta, Renca, San Joaquín, San Miguel, San Ramón, Vitacura, Puente Alto, San Bernardo

Source: Own elaboration.

The geographical coverage of the CPI presented in the table above is not equivalent to the coverage of the IX HBS, and thus some communes covered in the IX HBS are excluded from the index to improve resource and operational efficiency.

5.4 Temporal scope of the index

For a better understanding of the CPI, a Laspeyres Index, the temporal dimensions that structure its calculation, and application are presented using the nomenclatures commonly used in the literature, which are presented in Figure 3.

FIGURE 3. TEMPORAL DIMENSIONS OF THE INDEX
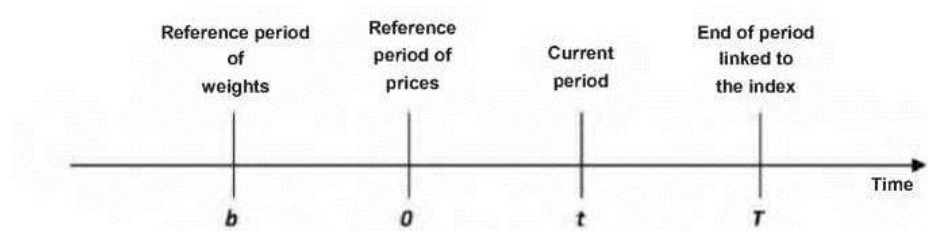
Source: Guía práctica para el establecimiento de precios al consumidor, Naciones Unidas (2004).

The base year usually refers to the period with which all prices are compared (period 0); however, depending on the context, it could refer to the first three periods presented below.

(a) Reference period of weights (period b)

This period is when information required for constructing the product weights of the basket was obtained. For the 2023 CPI, this period was the collection period of the IX HBS: from October 2021 to September 2022. Because the CPI is a Laspeyres Index, it is from this period that quantities and prices are obtained to calculate basket weights.

(b) Reference period of the index

This period is when the value of the index is set at 100, which in this case is the year 2023.

(c) Reference period of prices (period 0)

This is the period used to compare prices.

(d) Current period (period t)

This is the month under analysis, and it appears in the numerator of relative prices.

5.5 Statistical units

A statistical unit is a basic unit of observation, referring to a natural person, a household, a family, an occupied or conventional dwelling (INE, 2022) in the context of the collection and analysis of statistical data.

The statistical units of the CPI compilation are as follows:

(a) **Observation unit:** Establishments (public and private institutions and households) that sell and households that acquire the goods and services of the CPI basket within the geographical coverage of the index.
(b) **Sampling unit:** Goods and services of the CPI basket in establishments within regional capitals and their main conurbations.
(c) **Unit of analysis:** Prices of goods and services of the CPI basket that are collected in establishments of the sample.

5.6 Definition of variables

Every month, INE collects the prices of the varieties of products in the CPI basket in the establishments of the sample. Additional information, such as technical characteristics or descriptions for correct monthly price monitoring, may be recorded for certain varieties.

From the monthly collection of prices, various aggregate indices are constructed by classification levels, which together with the basket weights enable the construction of an overall aggregate index.

The data collected for the calculation of the CPI are prices of actual transactions, which include indirect taxes paid by households residing in Chile (such as value added tax and specific taxes[47]), discounts, and special offers, when they are non-discriminatory.

Changes in the price of varieties during the month in exceptional situations (for example with special offers) may be due to commercial strategies that offer a temporary reduction in its price. In other cases, temporary or permanent changes are made to the sales format, or a gift (another variety) is included next to the purchased variety. In these cases, special offers are collected only if they are explicitly presented and the price is universally available[48].

5.7 Statistical classifications used

To build the CPI basket, INE uses the 2018 version of the Classification of Individual Consumption According to Purpose. It should be noted that although this classification is used as a guide, certain adjustments have been made to the classification for selected products.

For further details of the classification, see section 4.1.1.

5.8 Sampling frames

Sampling frame refers to the list of all establishments and units in which households within the geographical coverage of the CPI can purchase the goods or services of CPI basket.

The information sources used for the construction of CPI sample frameworks are listed below:

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[47] These taxes include the tobacco tax, specific fuel tax, stamp tax, and alcohol tax.
[48] The special offer must be universal. It therefore must be available to all consumers, regardless of their characteristics, the means of payment, or the units purchased.

- **Household Budget Survey:** This survey determines the percentage distribution of purchases for each of the products of the CPI basket according to types of establishments and geographical areas.
- **Product variety or registration survey**: This survey verifies the presence of the varieties of the CPI basket in the different kinds of establishments and in the geographical distribution of interest. This information is used to build the sample of varieties.

These sources are also used for specific studies of products and varieties, such as those aimed at determining the establishment's market share of the product and the most representative varieties it sells.

The integration of these sources enables the definition of price samples per product, the samples of varieties per product, the samples per type of establishment, and, finally, the sample for the price collection.

5.9 Sampling design

From a practical point of view, the prices of goods and services in the CPI basket cannot be collected in all establishments present in the territory within the geographical coverage of the index, because of the volume of information is such that its collection, processing, and analysis would be excessively complex and expensive. A representative sample of establishments where these products are sold must therefore be determined. In other words, a sample of outlets must be selected.

In order to ensure that the prices collected are representative, an appropriate distribution method must be applied to the selection of outlets while maintaining cost-effectiveness.

After determining the representative outlets, the number of prices to collect in each of the urban areas of the sixteen regional capitals and their conurbations must be determined.

Finally, once the number of prices to be collected in the urban areas of the sixteen regional capitals and their conurbations has been established, the representative varieties of the products of the basket and the preferences of those who consume them must be established.

Although this process is a fundamental part of the methodological design of the change of base year, which is carried out every five years, the selection of establishments and varieties can be modified throughout the period of validity of the basket to adapt to changes in consumption patterns, market conditions, and the cost-efficiency ratio of the price collection process.

5.9.1 Selecting outlets

In the construction of the CPI base 2023=100, the outlets (which will be the sources of information for the index) are selected with non-probabilistic methods because of the complexity and high costs associated with the need to obtain up-to-date and complete frames. However, a combination of targeted sampling and market-share threshold values,

based on the best available information, is used to ensure the representativeness of the product sample.

Thus, to build the list of establishments that sell the products of the basket, as reported in the IX HBS, the selection criteria are as follows:

- The establishments selected in the sample are those that are most representative (according to their market share) and that cover at least 85% of the market.
- The establishments are located, as far as possible, in the large commercial areas of each city, which is compared with the operational organization of the monthly price collection routes.
- In large cities, geographical proportionality should be applied. For example, in Greater Santiago, the communes of the region are divided according to the cardinal points and then, within these four areas, establishments are selected.

The result is the directory of information sources (or respondents) from which prices will be collected every month. This directory can be modified according to operational needs.

5.9.2 Definition and number of prices to collect

Having determined where prices will be collected every month, the next step is to calculate how many prices will be collected for each product in such a way that all are representative and consistent with household consumption habits.

The number of prices to be collected is determined according to the product's weight in the basket and the price variability of its varieties. Products with greater weight and variability will require a greater number of collected prices.

When defining the number of prices, a theoretical sample size is first established according to the weight and price variability of each product at the national level. Once the total amount of prices to be collected per product is counted, the total number of prices is distributed by region in the geographical coverage of the CPI to determine the number to be collected in each regional capital and its conurbation.

5.9.2.1 Algorithm for calculating the national sample size by product

The determination of the volume of collection (quantity of prices) at the national level will depend both on the variation of the elementary aggregates in the period 2019–2022 and on the weight of the product in the CPI basket 2023=100[49].

Each CPI Division is analyzed as an independent population, except for Divisions 1 and 2 (both of which consist of food and drink products), and Divisions 4 and 5 (both of which consist of household and housing-related products).

In a first stage, the sample sizes for each product are determined nationally by simple random sampling (SRS) without replacement, with a confidence level of 95%.

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[49] For products that are newly incorporated with the basket update, no information exists on the price variation in that period, so sample sizes are determined according to simple random sampling (SRS) based on the price variations at the level of subclass, class, or group to which the new product belongs.

The target sample size is calculated according to the following formula:

$$n_p^* = \frac{z_{1-\alpha/2}^2 \cdot s_p^2}{\overline{IVE}_p^2 \cdot \varepsilon^2} \ (1)$$

Where,

n_p^* : The initial target size of prices to be collected for the product.

$z_{1-\alpha/2}$: The standard normal statistic, corresponding to a confidence level of 95%.

$\overline{IVE}_p$: The IVE (Index of variety-establishment) is the relative price between month t and previous month -1 ; (p_t / p_{t-1}) is the average price relative of the product.

s_p^2: The quasi-variance of the variations of the relative price of the product p.

ε: The relative error, which has been established at 5%.

Simple random sampling includes only the variation of collected relative prices and not the weight of products of the basket. To avoid this problem, a classification algorithm (cluster) is used to recognize products that have similar coefficients of variation and basket weights within the respective CPI Division[50].

The variables for the classification or cluster analysis (clusters) are the weight of the product within the division and the coefficient of variation of the price relatives of each product at the national level. Before running cluster analysis, both variables are rescaled between 0 and 100. The rescaling gives a theoretical price size for each cluster, which is defined as the sum of the initial sample sizes.

$$n_{dk} = \sum_{j \in k} n_p^* \ (2)$$

Where,

n_p^*: The theoretical initial size of products for product j according to SRS.

n_{dk}: Total size of prices to collected to be collected in the cluster k of division d.

In the next stage, the clusters are arranged by the importance of the weight and the coefficient of variation of the products[51] in order to assign a sampling error such that the target sizes are established in accordance with the order of the cluster. In short, products with high weights and high variability will be assigned a greater number of prices to be collected and vice versa. Using this optimal allocation typology, the cluster sample size of each product (n_p) can be distributed according to its importance.

$$n_p = n_{dk} \frac{W_p' \cdot CV_p'}{\sum_{p \in k} W_p' \cdot CV_p'} \ (3)$$

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[50] The completed cluster analyses use K-means and hierarchical methods such as Centroid, Farthest Neighbor, and Ward Group. The last responded best to clustering needs.

[51] This arrangement is calculated as the Euclidean distance between the average weight and the average coefficient of variation of the rescaled products within the division.

Where,

n_p : The sample size of prices to be collected at the national level for product p.

n_{dk}: The total sum of the initially calculated n_p^* that belong to cluster k.

W_p': The rescaled weight of product p of division d.

CV_p': The coefficient of variation rescaled for each product p within the years 2019–2022 of division d.

The empirical evidence obtained from this process verifies that the documented procedure enables larger sample sizes to be determined for products with greater weight and price variation.

5.9.2.2 Distribution of national product sample size at the regional level

Once the number of prices to be collected for each product has been obtained at the national level, a second phase begins where the number of prices to be collected per product is distributed at the regional level within the geographical coverage of the CPI. The second phase has two steps, both of which use available HBS data and population statistics.

First, to establish the number of prices per product according to macro-zone, the information of the expenditure reported in the IX HBS is used in the macro-zones of the CPI base 2023=100.

In the second step, a regional approximation is made of the number of product prices to be collected in each macro-zone p using regional population data within the geographical coverage of the CPI as reported in INE's demographic and vital statistics.

5.9.3 Selection of varieties

The selection of varieties is determined in the last part of the sampling design, and this process is carried out for all products. The selection is updated only when the base year is changed or when the selected varieties are discontinued to maintain the representativeness of the index.

A variety is a good or service with specific characteristics that is sold in the market, for example, haircuts for men or a kilogram of grapes. A product in the CPI basket has one or more varieties. Varieties are the elementary level of the index, which means they are the units whose price is collected in a set of establishments (or sources) defined previously.

The information for selecting varieties comes from market research, information from administrative registers, and expert judgment.

To select a variety, the following general criteria are used:

   (a) **Representativeness:** The varieties with the greatest relative weight are included in the sales of the establishments most representative of household consumption.
   (b) **Permanence:** The variety selected for the monthly price collection must have a stable presence over time.

(c) Ease of collection: Priority is given to the selection of varieties that are less difficult to measure and monitor over time according to field observation and experience acquired during the registration of establishments. From an operational point of view, highly complex varieties are only selected when strictly necessary.

As mentioned at the beginning of the explanation on sampling design, technical selection decisions are subject to continuous revision and modification during the validity of the base year in order to reflect the dynamics of markets and household consumption habits at every moment in time.

5.10 Definition of products with special treatment and with seasonal varieties

In the design of the index, the nature of certain products requires specific treatment to calculate their price and elementary aggregates and to determine how they are to be collected. Definitions of the categories of these cases, which may appear simultaneously in a single product, are presented below.

A document on INE's website also describes the methodology used for these products along with relevant products of the basket.

5.10.1 Products with special price construction

Certain varieties of products require a price valuation not from direct observation at the source but from a construction according to previously defined standards.

The calculation of the price of these varieties uses a standard bill, which is the sum of components of the total price of the service. These components can have two forms: full amounts and amounts valued according to the unit of measurement consumed. An example of the first is educational services whose price is determined by the registration, enrollment, and fees. An example of the second is drinking water bill, which includes a fixed component and another component valued by the consumption of cubic meters of drinking water.

5.10.2 Products with weights below the product level

To better represent price behavior in the market and thus increase the precision of the index, some products have a weight below the level of product. Different weights are assigned to the varieties and/or establishments of which the weight consists, and these lower level weights are incorporated into the process of aggregating elementary indices (see section 8.1.2).

Establishment weights are constructed through the market shares of the major institutions that sell the good or distribute the service.

Variety weights are then calculated in consideration of the preponderance of one variety over others. The relative importance of these weights is determined according to the variety's share of the income of the establishment and the frequency of consumption.

5.10.3 Products with seasonal varieties

Seasonal or temporary varieties are varieties that are not available in certain seasons (months) of the year and whose prices are synchronized with the season or time of year[52]. The origin of seasonality can be in climatic, institutional[53], or commercial[54].

The prices of some goods and services are cyclical, but they are also associated with the conditions of supply and demand, for example, water supply, electricity supply, and package holidays.

The products of divisions such as Food and Non-alcoholic Beverages (Division 1) and Clothing and Footwear (Division 3) are strongly linked to the phenomenon of seasonality, especially clothing and footwear, which has two defined seasons (spring-summer and autumn-winter), and is subject to changes in fashion, which affects its prices.

For Division 3, products are constructed from (a) varieties that are present all year round, (b) varieties present only in the spring-summer season; and (c) varieties in the autumn-winter season. Annex 4 provides details on seasonal products.

The seasonal varieties (autumn-winter and spring-summer) of Division 3 of Clothing and Footwear are subject to a seasonal calendar. Seasonality, as defined in the calendar, establishes that the price information of the last month of each season (January for spring-summer and July for autumn-winter), enters into the calculation provided that the number of prices meets the criterion of representativeness of 50% of the prices collected.

In addition, the prices collected one month before the start of the season in the calendar are used in the CPI calculation if and only if they meet the same criterion of representativeness[55].

The calendar for seasonal varieties of Division 3 is shown in the following table.

TABLE 8. CALENDAR OF SEASONALITY FOR CLOTHING AND FOOTWEAR

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Autumn-winter	√	X	X	X	X	X	√					
Spring-summer	√						√	X	X	X	X	X
School	X	X										

Note: X = months in which the variety is in season. √ = months in which the prices of varieties are collected, but their use in the index calculation is subject to meeting 50% of total sample prices of the variety at the national level. If this criterion is not reached, the variety is considered out of season, and its prices are therefore imputed using the carry-forward method.
Source: Own elaboration.

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[52] The varieties can sometimes be found in a small number of establishments throughout the year, but their low availability makes them unrepresentative for CPI purposes.

[53] A law or custom determines that a good or service is provided in a defined period during the year. For example, the academic period for primary and secondary education runs from March to December, but school uniforms are available between January and March of each year.

[54] There are cases in which a commercial decision increases or reduces the physical space allocated to the sale of a product for a certain period to augment the supply of another product or other products. For example, toys are sometimes replaced on shelves by school clothing, camping gear, and recreational items in the summer.

[55] The criterion of representativeness is not used for the months within the season, because the prices of the varieties collected enter the calculation using various imputation methods whenever necessary.

In Division 9 (Recreation, Sports, and Culture), the products of national and international package holidays are governed by a calendar of seasons. The following table shows the calendar for these products.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Winter*					X							
Summer*											X	X

Note: X = months in which the price is collected and entered into the index.
(*) Because the survey of package holidays is done two months in advance, the high winter and summer seasons are collected two months prior to the season.
Source: Own elaboration.

5.11 Summary of periodicity in the statistical design

The following table summarizes the relevant stages in the construction of the CPI that were previously reviewed.

TABLE 10. STAGES IN THE STATISTICAL DESIGN

Stage	Frequency	Relevant aspects
General methodological definitions of the index	Five-year	Type of index. Geographical and temporal coverage.
Selection of outlets	Five-year (*)	A sample of establishments where households mainly buy the products in the basket is selected.
		The answer to the question: **Where are product prices collected?**
		They are collected in a **sample of establishments**.
Definition and number of prices to collect	Five-year (*)	The number of prices to be collected is determined according to the product's weight in the basket and the price variability of its varieties.
		Answer to the question: **How many prices are to be collected?**
		The number of prices collected is according to the **sample size**.
Selection of varieties	Annual (*)	The most-consumed varieties are selected for each product in the CPI basket.
		Information from the market, the IX HBS, and a Structural Product Survey are used.

Stage	Frequency	Relevant aspects
		Varieties are selected according to the **sample of varieties**.
Definition of products with special treatment	Five-year (*)	Varieties can be classified as temporary and seasonal according to their behavior in the market.
		The distinction of the type of variety defines the times in the month when its price must be collected.
		Answer to the question: **When are prices collected? How many times per month should prices be collected?**
		In addition, products requiring special calculation or treatment are defined according to market behavior.

(*) This process is continually reviewed and may be updated more frequently.

Source: Own elaboration.

CHAPTER 6 – DATA COLLECTION

While the basket update and the sampling design are conducted every five years, the processes described in the following chapters are carried out every month to calculate price variations.

Monthly or short-term data collection is an operation that requires complex fieldwork by many people, who are known as data collectors. This operation requires exhaustive planning and process management[56] to ensure its optimal development. The specifications of the varieties must be precisely defined, and price collection procedures must be determined and properly implemented for each type of source.

6.1 General characteristics of data collection

This section covers the main techniques and definitions of procedures for data collection in the CPI statistical operation.

6.1.1 Variety specification

A variety is a good or service available in the market, and it is defined according to a set of attributes or characteristics, such as brand name, technical description, size, content, packaging, and origin.

The two categories of variety are heterogeneous varieties and homogeneous varieties.

- **Heterogeneous varieties** are characterized by significant differences among their various versions or models. In such cases, each unit may exhibit important attributes that distinguishes it from the others.
- **Homogeneous varieties** are those in which the discrepancies between their multiple versions or models are minimal or sometimes non-existent. In this category, all units are virtually identical in features, quality, and function.

For heterogeneous varieties (e.g., cell phones), the specification requires detail to maximize comparability between periods because substantial differences can be found between one variety and another (UNECE et al., 2009).

The specification of a variety is a description of the most relevant characteristics of the variety that determine the level and evolution of the associated price, thus ensuring comparability between successive periods of the variety collected at the same outlets and facilitating the selection and evaluation of replacements proposed by the data collector. The degree of precision requested in the specification helps the data collector to identify the requested variety among the alternatives present in the market.

In operational terms, each variety normally has two types of specifications: the basket specification and the field specification. The basket specification establishes the parameters and characteristics that fit the respective variety-establishment, while the field specification (description) provides the specific characteristics that determine the variety to be collected

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[56] The logistics of data collection must be established, executed, supervised, and finalized.

each month and observes the characteristics of the variety actually collected in the surveyed establishment.

The basket specification can be flexible or strict, regardless of the required level of detail. Flexible and strict specifications are described below:

- **Flexible basket specification:** The specification of the variety may contain ranges of the unit of measurement, alternatives of material composition, or other characteristics that require the application of the data collector's judgment in accord with the availability of the variety in each establishment. This type of specification is used for some varieties because it allows for adaptation to the rapidly changing tastes of consumers (UNECE et al., 2009).
- **Strict basket specification:** The specification of the variety is precise, and it therefore permits neither varying units of measurement nor alternatives in the characteristics of the variety. The data collector therefore has no discretion in choosing a variety. The strict specification uses only the basket specification, not the field specification, as a guide to identify the variety.

When the price of a variety is collected for the first time, the collection form has no field specification, so the collector must select a good or service within the parameters described in the basket specification. Once the variety is chosen, the field specification should describe the variety for future identification.

In the next and subsequent collection periods, the field specification will provide a detailed description of the characteristics of the last variety collected. A variety with such characteristics should be observed again to compare its price. If the variety described in the field specification is not available and will definitely not be available, a replacement must be proposed that matches the attributes described in the basket specification.

For illustrative purposes, some examples of variety specifications used for price collection are shown in Table 11. The varieties with field specifications have flexible basket specifications, while varieties without field specifications have strict basket specifications.

TABLE 11. EXAMPLES OF VARIETY SPECIFICATION IN THE CPI 2023=100

Product	CPI code	Variety	Basket specification	Field specification
Oranges	11615	Oranges	Navel group, bulk or packaged; up to 3000 g	Bulk Navel 1000 g
Underwear, swimwear, and sleepwear for children	31134	Socks for children	Main fabric: Natural, synthetic, or blend; sizes: from 4 to 12, equivalent; one pair or a pack (from 2 to 8 pairs)	75% cotton 23% polyester 2% elastane, one printed with lines, the other with a gray snake print background and the other with a navy blue background with the phrase "no"; indicates origin; size 28/31 follows
Kerosene	44311	Kerosene	Domestic kerosene	-

Product	CPI code	Variety	Basket specification	Field specification
Household heating appliances	53131	Kerosene stove	Heating range: From 16 to 140 m²; Power: manual or automatic	Heating range 70 m²; Power: manual or automatic

Source: Own elaboration.

6.1.2 Collection method

The monthly price collection for the construction of the index by each regional operational team is mainly based on on-site visits to the outlets from the sample of sources. In addition to the collection method, a series of complementary and non-traditional techniques[57] are employed in the fieldwork, among which are collection by telephone, the source website, e-mails, self-administered questionnaire, scanner data, and web scraping[58].

The collection methods used in the CPI statistical operation are described below:

1. **Field collection:** Data collectors in the field visit the outlets and record prices, special-offer codes, and associated observations on a paper form. They observe, analyze, and research prices posted on packaging, posters, and labels, and if necessary, consult and confirm prices at barcode readers, at cash registers, or with a qualified respondent.
2. **Telephone collection:** Centralized data collectors communicate by telephone with the person in charge of submitting the data, which are entered in the price collection form available in the computer system.
3. **Collection by website search:** Data are collected from the office by searching the websites of the selected sources. The published price for the variety is found and recorded, its availability corroborated, the method of delivery of the purchase (home delivery or in-store) and shipping costs (if applicable) identified, and the availability of purchase on the website confirmed.

   The collection of data from websites is used when the preferred format of selling the variety in the establishment is through the website and when, from the point of view of price collection, it is more efficient. The source site must be sufficiently stable for collection by this technique.

4. **Collection by e-mail:** In this type of collection, the requested price information for a given variety is received through e-mails from the sources.
5. **Collection by self-administered questionnaire:** At the beginning of price collection, those in charge of data collection in the office send instructions to each source with a personalized password so they can access the computer application and complete, within a defined time limit, a self-administered questionnaire on the price and other relevant characteristics, if appropriate, for the variety.
6. **Collection by scanner data:** In this non-traditional data collection technique, a database is periodically requested from the companies with information on prices,

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[57] Their use depends on the specifics of each source and respondent and on the characteristics of the varieties included in the basket.

[58] These techniques are among the non-traditional methods of price collection.

sales, and characteristics of all the varieties of the basket sold per day by the company.

This price collection technique is used mainly in establishments, such as supermarket chains, department stores, home improvements stores, and pharmacies, because it is more efficient and less costly for the respondent to provide data and for INE to collect it each month.

7. **Web scraping:** In this non-traditional technique, the monthly collection of prices and characteristics of varieties is automated with an algorithm that simulates the navigation of a person browsing the website thereby extracting the data required for collecting the price of the variety.

6.1.3 Period and frequency of price collection

The frequency price collection of products depends mainly on its variability and nature. Goods and services with more volatile prices[59] are collected more frequently throughout the month, but it can be assumed that less volatile product prices are collected only once a month. Finally, some product prices tend to remain constant throughout the year (for example, tuition and monthly fees for education services), so it is not necessary to collect prices every month, but only in specific months.

For collection by traditional methods, various collection periods have thus been established according to the characteristics of each type of product. However, the periods may be adjusted according to changes in the availability of data or patterns of price updates. For non-traditional methods (such as web scraping and scanner data), collection is at least as frequent as for traditional methods, and it may increase according to the amount of information available and to the characteristics of the source from which prices are collected.

Once the frequency of price collection is defined, the day of the week on which it will take place is established. The day of the week for collection is determined at each change of base year, and it may be adjusted in some cases for changes in the market or for technical or operational needs.

The day of each collection within each week is maintained to ensure that the price changes observed on a monthly basis are a consequence of changes in market conditions instead of the change in the day of collection. If a change of collection day is required for a source, prices must be collected simultaneously on the previously defined day and the new day in the month of change. For the following month, only the collection on the new day of the week is continued.

The organization of collection throughout the month is summarized in Table 12, which differentiates division, their products, and the weeks (number of times in the month that prices are collected).

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[59] This group includes perishable food, non-perishable food, fuels, interurban buses, and passenger transport.

TABLE 12. FREQUENCY OF MONTHLY COLLECTION OF PRICES OF THE CPI BASE 2023=100

Divisions/Products or types of products	Monthly price collection (No. of times per month)
Division 1: Food and Non-alcoholic Beverages	
Perishable foods	3
Non-perishable foods	2
Division 2: Alcoholic Beverages and Tobacco	
Alcoholic beverages	2
Tobacco	1
Division 3: Clothing and Footwear	1
Division 4: Housing and Basic Services	
Fuels (a)	4 or 5
Other products of Division 4	1
Division 5: Household Equipment and Maintenance	1
Division 6: Health	1
Division 7: Transport	
Fuels (b)	4 or 5
Interurban bus transport (c)	4 or 5
Private transport of passengers (d)	4 or 5
Other products of Division 7	1
Division 8: Information and Communication	1
Division 9: Recreation, sports, culture	
Tickets for sporting events (e)	4 or 5
Tickets for cultural events	2
Other products of Division 9	1
Division 10: Education	1
Division 11: Restaurants and Accommodation Services	
Food purchased in restaurants, cafes, and the like (f)	2
Other products of Division 11	1
Division 12: Insurance and Financial Services	1
Division 13: Miscellaneous Goods and Services	1

Notes: In the divisions that are not disaggregated, all products are collected on a monthly basis.

(a) Prices of gas and kerosene are collected every week of the month.

(b) Prices of gasoline and diesel fuel are collected every week of the month.

(c) Prices for interurban bus tickets are collected every week of the month on Fridays and evenings before holidays.

(d) Prices for passenger transport arranged through mobile applications are collected every week of the month on Tuesdays and Fridays.

(e) Price collection for sporting events varies according to the dates official championships of professional football.

(f) Prices of food in these establishments are collected two times per month.

Source: Own elaboration.

From the operational point of view, the regular collection of prices within the month is divided into weeks[60] and takes place from the first to the twenty-first of each month (which corresponds to the last working day of the third week of collection from Monday to Friday).

During the twenty-second and twenty-third of the month (the fourth week of collection) the establishments where prices were not available at the time of collection are revisited in order to finalize the monthly process (with the exception of price collection for fuels, interurban bus tickets, and passenger transport arranged through mobile applications, whose collection can be made until the last day of the month according to the conditions previously mentioned). If a specific recovery operation is required for any particular situation during the month, it can be done up to the last working day of each month.

For some food varieties (Division 1), specifically those collected in street markets, prices are collected during the morning between 9:00 am and 12:00 pm. In the afternoon, the focus is on collecting prices from the remaining divisions.

For centrally collected information, such as financial expenses, electricity supply, water supply, insurance, and mobile telephone services, the cut-off date for the valuation of services is the fifteenth of each month, while the information must be received by the twentieth of the same month.

On the other hand, some product prices are collected on specific days of the month, such as mobile telephone equipment, urban bus transport, and training courses, which are collected on the fifteenth of each month or on the following working day. Prices for package holidays are collected each month on Wednesday of the week during which the fifteenth falls, and accommodation services are collected on Tuesday of the second week of each month.

Products of the CPI basket with infrequent annual price collection are presented below in the Table 13. These products may be those whose varieties are not present throughout the year (as occurs with seasonal varieties) or whose prices change exclusively in established months.

TABLE 13. FREQUENCY OF PRICE COLLECTION OF THE CPI 2023=100

Division	Product of variety	Collection months	No. of months per year
9	Toys	April to December	9
3	Clothing and footwear (autumn-winter) (a)	January to July	7
3	Clothing and footwear (spring-summer) (a)	July to January	7
5	Household heating appliances	April to August	5
9	Items for camping and recreation	December to February	3
4	Rentals	Price collection varies according to the panel updates.	6

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[60] The first week begins on the first day of the month and consists of seven days, so the eighth day begins the second week of the month, and so on.

Division	Product of variety	Collection months	No. of months per year
5	Domestic service	Price collection varies according to the panel updates.	6
4	Refuse collection service	March and September	2
7	Taxi (Metropolitan Region)	January and July	2
7	School transport	March and August	2
9	Educational texts	February to March	2
3	School clothing	January to February	2
10	Postgraduate education	April to May	2
10	Early childhood, primary, and secondary education (b)	December	1
10	Post-secondary education (c)	January	1
10	University-preparation services	February	1
13	Fees for parent and guardian centers	December	1
10	Nursey schools	Price collection varies according to updates of fees from each source.	1

(a) These items are not products; they instead refer to specific varieties of Division 3 whose prices are collected in the respective clothing seasons, either autumn-winter or spring-summer.
(b) These products include early childhood education, the first phase of primary education, the second phase of primary education, and secondary education.
(c) These products include education in technical centers, education in professional institutes, and university education.
Source: Own elaboration.

6.1.4 Price recording

The prices required for the CPI calculations are gathered regularly, and they are the prices in effect at the time of data collection, specifically, the prices in effect at the time of observation.

Prices must be expressed in pesos, which is the legal tender of the country. When products are traded in another monetary unit, the values must be transformed using the following criteria:

(a) **Goods and services expressed in UF, UTM, or CPI-indexed values** are converted to pesos with their value on the fifteenth of each month or the following working day (if the fifteenth is a holiday). Examples of services valued in UF are monthly payments for educational services and bank and trading-company commissions.
(b) **Goods and services valued in dollars** are converted into pesos according to the dollar value reported by the establishment at the time of price collection[61] or, if such information is not available at the establishment, the observed dollar value of the fifteenth or the following working day (if the fifteenth is a holiday). International air transport, international package holidays, and accommodation services are some examples of this type of valuation.

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[61] The procedure applies to any valuation of the good or service in foreign currency. In this case, the price variation includes the variation in the exchange rate between the peso and the foreign currency.

The CPI incorporates product prices according to the current collection month, but there are two exceptions:

(a) **Future prices** refer to the prices of products that are purchased in advance, for example, air transport and package holidays.

(b) **Past prices** are the prices for services that are paid after the delivery of the service, for example, co-proprietor expenses.

For the purposes of calculating the CPI, the way in which the price is recorded in the collection forms and databases will depend on the specific situation of the establishment. In general, there are four situations:

(a) Special offers or promotions: Commercial policies of establishments in which they advertise a reduction in the price of a variety for a particular situation or event such as Mother's Day, Children's Day, or the September bonus (in the case of motorcars).

$$Calculation\ price = Observed\ price = Discounted\ Price^{62}$$

(b) Variety plus a gift valued in the establishment: The manufacturer or establishment that commercializes the variety gives as a gift another variety (different from the one for which the price is being collected) to whoever buys it, with the possibility of buying both varieties separately in the same establishment[63]. From the perspective of the index, the calculation price should not include the price of the variety received as a gift. Therefore, to obtain the calculation price, 50% of the value of the gift is deducted from the observed price:

$$Calculation\ price\ =\ Observed\ price - (0.5\ x\ gift\ price)$$

(c) Variety with a change in content: The manufacturer or establishment modifies the content or presentation format, so data collectors observe a field unit at the establishment that is different from what is noted in the basket specifications (basket unit[64]).

The price that enters the calculation is obtained as the price proportional to the field unit of the new presentation with respect to the basket unit of measure in the price collection form and in the price databases.

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[62] The **calculation price** is that which enters the databases for the calculation of the CPI base 2023=100 after the effect of special offers or promotions have been removed. The **observed price** is the amount paid for a variety purchased in an establishment that is part of the index sample.

[63] Only special offers that include two varieties are collected. The price of promotional packs or combinations with three or more different varieties is thus not collected. For example, the price of a pack of shampoo and conditioner is collected, but the price of a pack consisting of an electric kettle, 500 grams of coffee, and a cup is not collected.

[64] A basket unit is the defined quantity of a variety for which the price must be collected in an establishment, and it is used as a reference in the calculation of the index.

$$Calculation\ price = \frac{Basket\ unit}{Field\ unit} \cdot Observed\ price$$

For example, this situation occurs when a brand of flour, whose usual marketing format is 1,000 grams, launches a promotional format of 850 grams. Data collectors will observe this difference in contents, and they must record this situation on the price collection forms. In the case of a non-face-to-face price collection, the same procedure is followed.

(d) Variety with a price discount expressed as a percentage: In the previous cases, the manufacturer or producer sought to promote its products by modifying the unit of measurement of the variety (changes in its presentation). In this case, it is assumed that the establishment implements a special offer by lowering the price by some percentage identifiable by all potential buyers. For purposes of the index, the calculation price is obtained as follows:

$$Calculation\ price = \left(\frac{100 - \%\ discount\ on\ price}{100}\right) \cdot Observed\ price$$

The typical example in this case is a special offer stating that the price of the variety is reduced by 5% with any means of payment.

6.1.5 Exceptions in price collection

For exceptional price reductions (which are understood as special offers), the following general conditions must be met in order to incorporate these prices into the CPI calculation:

- They should apply to individual purchases.
- They must affect the units of the variety included in the CPI basket.
- They must be available to all households without discriminatory conditions.
- Buyers must be aware of them at the time of purchase.
- They should be clearly identified and posted in places visible to data collectors or in database fields when information is received directly from the establishment.

For CPI purposes, prices paid in liquidation sales of varieties and products that are old, damaged, or deteriorated from long storage or any other factor must not be included unless it is a permanent and generalized feature of actual market conditions.

For clearance sales[65], some factors must be considered. Although in principle these prices are not collected, before the designation of a price as from a clearance sale, it must be confirmed that the price is for the clearance of an item from the inventory and that it is offered at a discount (ILO et al., 2020). Inventory is sometimes sold on a permanent basis at a discount or it is promoted as a special offer, even as a clearance sale, but it is sold at the same price throughout the year. In these cases, the prices should not be considered

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[65] A clearance sale or liquidation as understood in colloquial language is a sale whose large price reduction by an establishment is due to the end of the season, bankruptcy, renovation, or relocation of the establishment, etc.

clearance-sale prices. Instead, they should be considered special offers, and they must therefore be collected[66].

Establishments sometimes have special offers for the last units of a certain variety or for damaged, defective, or deteriorated products (for example, because they have been on display) or for food that is no longer fresh or is soon to lose its freshness (UNECE et al., 2009). These prices should not be recorded for the calculation of the CPI, because the quality of the associated goods and services is not equal or comparable to the quality of the units whose prices were collected in previous periods and because these varieties are unlikely to be available in the future (ILO et al., 2020).

6.1.6 Replacement of varieties and establishments

For varieties whose prices are collected each month, the variety is replaced when it disappears or when it is no longer representative of the market or establishment.

The general criterion for replacements indicates that the maximum period of absence of the price of a variety is two months, which means that in the second month of unavailability, the collector must propose a replacement. The replacement is evaluated by specialized analysts in the office, and it is accepted or rejected according to whether it complies with the attributes defined in the basket specifications.

A replacement should be proposed in the same month in which a variety disappears in some exceptional case such as the following:

(a) Varieties that undergo rapid technological change (e.g., televisions, computers, and mobile telephone equipment).
(b) Varieties that are subject to changes of fashion (e.g., clothing and footwear).
(c) Varieties in which the basket specification allows for collection in different presentation formats that can found in the establishment (e.g., bulk or packaged cheese).
(d) Varieties not present in the establishment and for which it has been confirmed that there are no more or very few more units available.

In all cases, the replacement variety must neither be in the same life cycle as the disappearing variety nor be in the process of liquidation of inventories.

In the months following the replacement of the variety, the price of the new variety incorporated into the system is collected.

6.1.7 Organization of operational teams

Prices are gathered by collection and supervision teams in all regions of the country.

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[66] In the case of clothing and footwear (where clearance sales are more frequent), a procedure defines the criteria that data collectors must use to distinguish between a special offer and clearance-sale price. Some of the elements considered are whether the clothing is its usual packaging, whether it is on the shelves where they are usually marketed or in other displays, and whether the most common sizes are available.

In regional capitals other than the Metropolitan Region, these tasks are organized by CPI's regional operational managers, who are in charge of the collection and supervision team associated with each region. In contrast, the operational structure in the Metropolitan Region is developed jointly by two subdepartments, the Subdepartment of Price Statistics Collection and the Subdepartment for the Supervision and Verification of Economic and Price Statistics, both of which coordinate operations at the national level under the responsibility of the Department of Operations for Economic and Price Statistics.

The Subdepartment of Price Statistics Collection includes the Field Collection Unit, which is in charge of field collection in the region, together with three other units that perform centralized tasks related to the statistical operation of the index. These units are the Office Collection Unit, which uses non-face-to-face centralized collection techniques, the Control Unit, which monitors the flow of collection forms, and the Data-entry Unit, which enters the data from the price collection forms into the CPI computer system.

The daily activities of these four units are managed by the CPI Coordination Team. These teams are joined by the operational support of the Macro-zone Coordination Unit, which defines the operational and technical guidelines for the collection.

The supervision section of the Subdepartment for the Supervision and Verification of Economic and Price Statistics is divided into field supervision teams, which are in charge of directly supervising and verifying data collection in the region, and office supervision teams, which are in charge of reviewing a sample of the forms collected at the national level.

Finally, there is the section for operations monitoring, which is in charge of preparing monthly progress reports and quality indicators and developing automated supervision of data collection, which includes supervision of the staff in charge of non-traditional collection methods.

Regarding the statistical operation of the CPI in the Metropolitan Region, the following figure shows the operational structure of the Subdepartment of Price Collection.

FIGURE 4. STRUCTURE OF THE SUBDEPARTMENT FOR THE COLLECTION OF PRICE STATISTICS IN THE METROPOLITAN REGION
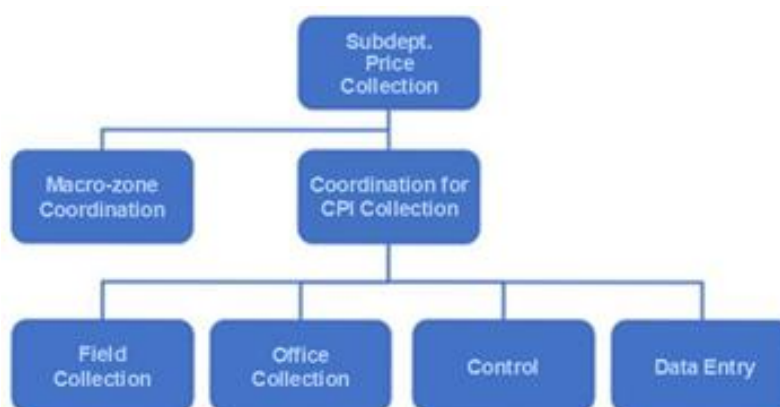
Source: Own elaboration.

Figure 5 shows the organization chart of the teams involved in the statistical operation of the CPI in regions other than the Metropolitan Region, and it incorporates the technical support provided by the Macro-zone Coordination Unit to the CPI manager of each region. It should be noted that the Macro-zone Coordination Unit is physically located in the Metropolitan Region.

FIGURE 5. ORGANIZATIONAL STRUCTURE OF THE CPI STATISTICAL OPERATION IN REGIONS OTHER THAN THE METROPOLITAN REGION
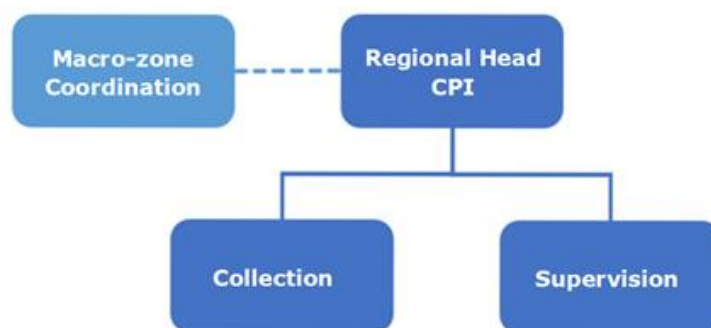
Source: Own elaboration.

6.1.8 Workload

The allocation of the workload to data collectors is based on the estimate of the total daily workload scheduled for each week of the price collection month.

For field collection, the total daily workload is organized into **rounds**, which are the unit of operational load assigned to the collector. Rounds normally include visits to a variable set of predefined sources, which are intended to be operationally feasible (in terms of physical distance between sources for field collection) and similar in terms of estimated workload (in terms of variety and complexity of collection). Although these rounds are generally maintained as fixed workload units over time, they may eventually be divided according to operational needs or as contingencies require.

For office collection, the daily workload is assigned to data collectors following the established price collection schedule. Although the workload is previously scheduled, planning may be adapted after notifying the respective operational coordination unit if warranted.

6.2 Characteristics of the data-collection instrument

This section discusses the characteristics of the different forms used in the collection and the general structure of the collection instruments.

6.2.1 Types of forms

The monthly collection for CPI products uses eighteen different operational forms. These forms are structured according to the varying information requirements of the varieties whose prices are collected, the establishments consulted, and the associated collection method. Table 14 shows the forms used for each type of product.

TABLE 14. NUMBER OF FORMS BY PRODUCT TYPE

Product type	No. of forms	Specifications
Food and beverages (Divisions 1 and 2)	4	Four forms that vary according to the number of monthly price collections
Clothing and Footwear (Division 3)	6	Five forms for specific clothing groups and one form for clothing and footwear items
Fuels (Divisions 4 and 7)	1	One common form is used for both divisions because of the number of collections is fixed.
Some products of Health (Division 6)	3	One form for each health-service provider system (Fonasa, Isapre, and private).
Some products of Transport (Division 7)	2	One form with addition fields is used for taxis; another form is used for interurban buses and transport arranged through mobile applications because the number of monthly collections is fixed.
Some products of Education (Division 10)	1	A common form is used for university-preparation courses and language institutes because tuition and fees are collected.
Other products	1	The remaining product varieties of the index that use a form
Total	18	

Source: Own elaboration.

6.2.2 General structure of the collection instruments

The structure of the collection forms for various types of instruments is similar; the differences in the number of additional fields to be completed are due to the specificity of the information requested.

Each form is associated with a specific source, and it lists the varieties to be collected at the source for that type of form[67].

The forms consist of three sections:

1. **Route map.** In this section, the following information must be completed:
    (a) Week, month, and year of collection.
    (b) Number of varieties contained in the form.
    (c) Identification of the data collector and the date of price collection.
    (d) In the case of field supervision, the supervisor's identification, the date, and the time of arrival and departure from the source.
    (e) Fields for the identification and signature of the office supervisor and the date on which the form was supervised.

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[67] Two forms, each from different sources (e.g., a non-perishable food form), even if used for the same type of establishment (e.g., a supermarket) and division (in this case, Division 1: Food and Non-Alcoholic Beverages), will be different because of the number of varieties they contain.

(f) Fields for the identification of the data-entry clerk and the date on which the data was entered into the computer system.

(g) Finally, fields identify the data-entry clerk and the date on which work was performed in the directory maintainer.

2. **Source and respondent identification sheet.** This section contains autofilled information on the following:

(a) Source identification: Internal source identification code, company name, commercial activity, national identification number (RUT), address, and name of the legal representative.

(b) Identification of the respondent: Name, job, telephone number, and e-mail.

(c) In addition, there is a field to add general comments about the source and to help the collection in subsequent periods.

3. **Sheets for the collection of prices and characteristics.** This section records the prices and characteristics observed in the field for each of the varieties listed on the form. The part for the collection of prices and characteristics is semi-structured, and it records the following information:

(a) The observed price (open numeric field).

(b) The special-offer code (a numeric field in which a code is recorded from a delimited list indicating information about variety availability, replacement status, or special-offer information).

(c) Special-offer information (open numeric field where amounts or percentages of discount on the target price are recorded).

This structure is replicated for each variety whose price must be noted in the form for as many times and monthly collections as required by the variety. Additionally, an open observation field is added for each variety of the form[68].

Other forms include fields for variety specifications that are considered in subsequent comparability assessment or for quality adjustments using hedonic models.

6.3 Training method for data collection

Training activities for data collection include two phases: initial training for new people who join the statistical operation in collection or supervision activities and continuous training for reinforcement of key areas that need improvement and for new technical and operational guidelines.

6.4 Methods of supervision

SUPERVISION INVOLVES DIRECTING, MONITORING, AND EVALUATING ACTIVITIES RELATED TO PRICE COLLECTION, AND IT IS FUNDAMENTAL FOR ENSURING ACCURATE AND CONSISTENT DATA COLLECTION IN ACCORDANCE WITH ESTABLISHED METHODS AND STANDARDS AND FOR WATCHING OVER THE QUALITY OF THE DATA COLLECTED.

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[68] An example of a generic product collection form is shown in Annex 5.

FIGURE 6, shows the two different forms of supervision: Field supervision and office supervision. These forms are mainly distinguished by the time and place of supervision.

FIGURE 6. STRUCTURE OF THE SUBDEPARTMENT FOR THE SUPERVISION AND VERIFICATION OF ECONOMIC AND PRICE STATISTICS IN THE METROPOLITAN REGION
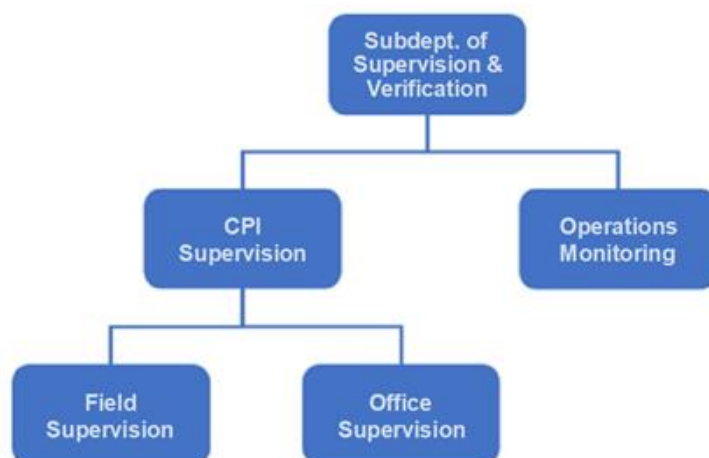
Source: Own elaboration.

The two types of field supervision are direct and indirect supervision. The difference between these modalities lies in the presence or absence of the data collector and the particular objective to be achieved.

Specifically, the purpose of direct supervision is to verify that the collection is carried out in accordance with the established procedures and that the quality standards defined for the statistical operation are met. The purpose of indirect supervision is to corroborate the correct recording of the information obtained during the collection process and to reconcile any differences detected in the collection of prices.

Two mechanisms are used to determine the units to be monitored on a monthly basis: random and targeted selection. In random selection, 25% of the forms used from each region in the period are randomly reviewed. In targeted selection, specific criteria are used to determine the form that will be subject to supervision.

Targeted selection automatically identifies varieties in the price base that are missing for three consecutive months, that show considerable variation from the previous month (i.e., an increase of over 70% or a decrease of over 30%), or that have not varied in price for the last four months. In addition, some varieties may be selected after an operational or technical review of the specific results of a collector's data if there is a suspicion of misapplication of procedures or poor practices.

Both selection mechanisms apply only to price collection in the field and to varieties active during the month (i.e., varieties are excluded from forms whose information is received centrally as are seasonal varieties outside their season).

In addition, for each type of supervision, the assigned supervisor must prepare a report within one working day of the supervision. This report is created in the supervision module of the CPI computer system by entering the contents of the collection instruments.

The following sections explain the procedure for direct and indirect supervision in detail.

6.4.1 Direct supervision procedures

Direct supervision, which is usually for field collection, consists of accompanying the collector in the collection process and observing compliance with current procedures noted in the direct supervision form. The form is a semi-structured observation guideline that lists the main procedures whose level of compliance is to be recorded during the collection process together with observations.

In the collection process, the supervisor must verify the correct recording of prices, special-offer codes, replacements, observations, and respondent data for all varieties requested.

When contact with a qualified respondent is required, data collectors should introduce the person supervising their work and indicate their role in the process. The supervisor should not intervene in the collection process unless directly asked by the person collecting the prices or by the respondent.

Generally, direct supervision is applied when a newly hired data collector has completed training and when the inconsistencies of a data collector need correction.

6.4.2 Indirect supervision procedures

Indirect supervision in the field consists of a supervisor collecting information in the absence of the data collector on the working day following the original collection. The purpose of indirect supervision is to identify any differences in the varieties reviewed, which, if found, are recorded in the indirect supervision report, together with other observations.

Every day, the unit supervisor asks for the record of the previous day's rounds, which forms the basis of the assignment of routes and supervision according to the availability of the team. Subsequently, the supervisor must verify the correct recording of prices, special-offer codes, replacements, observations, confirmation of the data collector's visit, and respondent information for all the varieties requested.

Office supervision is always indirect because it covers the information of the price-collection forms after the collection and without the presence of the data collector. Office supervision consists of reviewing the data already entered into the CPI computer system, verifying the correct recording of prices, special-offer codes, replacements, and observations, and then reporting any discrepancies in the data in the Indirect Supervision Report. If inconsistencies are found in the information collected, the person who collected the price of the variety will be questioned to resolve doubts or correct the error.

In operational terms, supervision occurs on almost every working day of the month. Specifically, indirect field supervision occurs one working day after each day of price collection[69], while indirect office supervision occurs throughout the month until its penultimate working day.

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[69] The monthly calendar (operations calendar) of price collection is followed.

Both modalities of indirect supervision cover at least 25% of the forms collected at the national level for each month.

Prior to data processing, specific varieties are supervised each month (targeted selection of varieties for supervision) in order to recover data or clarify the information collected. In this case, the objective is to corroborate the veracity of the data collected. The data are verified by collecting the data at the source (as the data collector did in the field collection), by asking the respondent identified on the form (field collection), or by searching the source record (centralized office collection).

The varieties to be supervised can be identified by the selection mechanisms indicated above, by the office supervisors, or by specialized analysts.

6.5 Closing of the collection

Data collection and supervision normally conclude on the last working day of the month. The result of these processes is a database with prices that, after validation in the next phase, is used for the calculation of the index.

CHAPTER 7 – DATA PROCESSING

Once monthly price collection has been completed for each product of the CPI basket, the data must be processed to obtain the indicator whose results are finally published.

Data processing involves the integration, validation, editing, and transformation of data for analysis and for the dissemination of statistical results. The following sections of this document discuss each of these subprocesses.

7.1 Data integration and codification

Data integration consists of recording the prices obtained from the variety-establishments in the computer system, while coding involves assigning these prices to product codes and providing additional information on price treatment for the calculation of the index according to the different levels of aggregation.

Integration involves recording collected prices in the system, regardless of the source from which the prices were obtained, and recording identifying information of the establishment and variety as well as any background information that explains the price variation during the month.

Coding involves assigning numeric or alphanumeric codes to text responses according to a predetermined statistical classification to facilitate data capture and processing (UNECE, 2019). For the CPI, a code is assigned to a variety i collected in an establishment j in region r while constructing the basket. Each price entered into the system therefore has a code assigned to it. In addition, this process creates codes that correspond to the codes of the previous basket.

When recording a price, codes are assigned in order to distinguish between active and inactive sources in the directory, regardless of whether the variety is active for the calculation of the index or whether the prices were available at the source. Through these efforts, the price database has a set of criteria for imputing or entering the price of a variety used in the calculation of the CPI.

7.2 Revision and validation of data

The purpose of data review and validation is to identify potential problems in the information loaded into the system during the integration process. These problems can be classified as outliers, missing information, data-entry errors, or other problems[70].

Once these cases are identified, operational processes (supervision) validate the information when there is doubt about the price or about editing (i.e., the next stage of the process).

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[70] Errors are incorrect prices, while outliers are defined as price movements that are exceptionally larger (or smaller) compared with the price movement of similar varieties and establishments or compared with prices observed in previous periods.

The validation of information is an iterative process of quality assurance for CPI prices that validates the price database every month.

The control criteria defined in this subprocess, both operational and technical, are intended to ensure the quality of the indicator. These criteria are explained in the following sections.

7.2.1 Operational validation

(a) **Validation of data entry and information input.** At the time of processing the information, validators are available in the computer system to avoid, for example, the entry of non-numeric characters in fields where there should be a number and numeric values that are incorrectly entered or are simply not applicable. This validation is the first transcription filter that prevents errors from being passed on to the price database.

(b) **Validation of completeness and consistency of information.** Some prices that were collected through paper forms are randomly selected for review in the computer system to ensure that all mandatory fields are complete and that what was observed at the establishment corresponds to the use of the current coding. For the other collection methods, reviews are conducted automatically and in collaborative environments.

7.2.2 Technical validation

In addition to the validations of the collection phase, others of the processing stage enable an evaluation of whether a price should be loaded to or corrected in the system, sent out for supervision, or excluded from the calculation for the month.

The first validation consists of reviewing the codes that indicate that the attributes and quality of the variety collected are comparable to the variety collected in the previous month. The assignment of these codes determines whether the price enters that month's calculation while considering that varieties should ideally maintain a constant quality for CPI price monitoring. Therefore, during the month, the comparable or non-comparable codes are validated with the prices in the system.

A variety is considered comparable when the attributes (characteristics) of the replacement variety are sufficiently similar to the discontinued variety for price differences to be attributed to market conditions instead of differences in quality. If there are differences in quality, the variety is considered non-comparable, the data are excluded from the calculation of the index, and the discontinued variety's price is imputed. Although the price of the non-comparable variety is excluded from the current month's calculation, it should be recorded for possible inclusion in the following month. Thus, when there are two consecutive observations of the replacement variety, its price is integrated into the index, and its first relative price can be calculated.

In addition to this technical validation, statistical analyses detect outliers in the price data. The methods used are as follows:

(a) **Interquartile method.** This method uses quartiles of the distribution of relative prices associated with a product p. When a relative price falls outside the tolerance limits, it must be studied. The review of the evidence may lead to correcting the value or maintaining it, after which the price is validated in the price database for the CPI calculation.

(b) **Analysis of maximums and minimums.** In addition, relative prices outside the defined range for each of the product varieties are reviewed each week. This process may involve rechecking the information contained in the price collection forms, consulting with the respondent, and revisiting the source. For this analysis, the historical price behavior of the variety-establishment makes it possible to discern which strategy should be followed and to rule out that the price is not an outlier[71].

Once an anomalous results is identified, its validity must be determined by contrasting it with external information sources or by consulting the data source or establishment.

After this analysis, identified errors will be corrected and the outliers that are verified as correct will be maintained in the database. A price collected might not be included in the index calculation if its value is determined to be erroneous but returning to the source to collect it again is not possible.

7.3 Editing and imputing prices

Two situations require the prices already entered into the CPI computer system to be edited:

- When price data for the month of analysis has not been entered correctly or has not been entered at all.
- When an adjustment to the price entered is needed because of a change in the quality of the variety.

Because the CPI is calculated every month for all the prices required for that month, missing prices must be imputed or estimated to ensure the representativeness as a price index.

The CPI editing and imputation processes are described below.

7.3.1 Editing for data-entry errors

When an error, regardless of it origin, is found in the price for the month under analysis during the review, supervision, and validation stages of the price database, it is corrected by editing it in the computer system. The editing process is recorded to ensure traceability.

Permissions for editing data contained in the CPI computer system are associated with the processes from collection to dissemination and the profiles of related staff, and these permissions are controlled by means of restricted access.

7.3.2 Editing for quality adjustments

The volatility of some of the products whose prices are monitored each month is one of the main problems in the elaboration of price indices with a fixed-base basket. The goal of

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[71] Because the range is based on its historical results, it varies according to each product.

maintaining a constant level of quality over time for the basket varieties collected becomes difficult when essential characteristics change frequently.

For products with less dynamic characteristics, quality can be adjusted by substituting one variety for another or by extending its specification, which is part of the regular variety collection process (i.e., implicit quality-adjustment methods). For these products, quality adjustments are usually handled through the assignment of comparability codes.

However, rapid technological progress or changes in fashion may require the collection of goods[72] whose characteristics change every month or within in a limited period for a given variety (heterogeneous varieties). For the CPI 2018=100, the technique of quality adjustments by hedonic models was used to solve the problem of rapidly changing varieties. This technique involves the explicit adjustment of price indices in which the magnitude of the difference in quality is determined.

With the methodology of hedonic models, the price difference that shows the change in quality (or characteristics) of a good can be estimated, and this estimate forms a basis for re-estimating the price collected to simulate constant quality. In other words, this methodology uses an estimate of the difference in the amount a consumer is willing to pay for the good of a different quality from a previously available good (ILO et al., 2020). In order to apply the methodology, information must be available on the characteristics that determine the price of a good, such as brand, technical specifications, and origin.

7.3.2.1 Hedonic models

In technical terms, a hedonic model is the econometric estimation of an equation for capturing the effect that attributes have on the price of a good (ceteris paribus). With this model, the price can be estimated as a function of the main characteristics of a good. Given the nature of each variety or product, differentiated hedonic models must be created.

A hedonic model of a variety or product represents a vector of i characteristics that determine the price of a good j:

$$Price\_est\_hed_j \ = \ \beta_0 + \sum_{j=1}^{k} \beta_{i,j} x_{i,j}$$

Where x_i is a set of significant characteristics of the variety or product j, and β_i represents the respective coefficients for those characteristics[73].

The estimation of the hedonic models is based on a sample of prices collected for the varieties subject to adjustment in a particular month and on a detailed description of the characteristics of each of these goods. Although all the variables available in the forms are analyzed, not all of them are selected for the model.

The characteristics or variables that remain in the model are selected through an iterative process, leaving those that are significant. Because several combinations of variables may

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[72] In this section, a good is defined as the minimum unit of collection, that is, a good is equivalent to an observed price.

[73] When calculating the hedonic prices, the random error of the estimated regression is not included.

result from this process, different models are evaluated and, following the Akaike information criterion (AIC) and Bayesian information criterion (BIC), the model with the lowest values in the criteria is selected, giving priority to the BIC.

For the model selected from the previous process to be used later for the adjustments, it must meet the following criteria: normality and homoscedasticity of the residuals and absence of multicollinearity in the explanatory variables, which leads to the elimination of certain observations. In this process, outliers are also evaluated according to graphical methods such as Cook's distance or other methods.

7.3.2.2 Adjustments for hedonic models

The circumstance that requires the use of adjustments through hedonic models is the collection of prices of goods that have undergone technological or quality changes and are thus not equal in quality or characteristics to the goods collected the previous month for a given variety.

To obtain this monthly adjustment, the following steps must be taken:

- **Step 1:** Note the characteristics of the current (or new) good and the previous good.
- **Step 2:** Calculate the adjusted price of the new good by replacing the characteristics from the previous step in the following equation:

$$\hat{P}_t^2 = P_t^2 * e^{\left(\sum_{i=1}^{n} \beta_i * (x_i^2 - x_i^1)\right)}$$

Where,

$\hat{P}_t^2$: The estimated price of the incoming good, for period t.

P_t^2: The price of the incoming good, in period t.

β_i: The vector of parameters resulting from the hedonic model for the i-th characteristic of the variety or product.

x_i^2: The value of the i-th characteristic of the incoming good.

x_i^1: The value of the i-th characteristic of the outgoing good.

- **Step 3:** Calculate the Index of variety-establishment (IVE) for each of the goods to which the adjustment is made:

$$Adjusted\ IVE = \frac{\hat{P}_t^2}{P_{t-1}^1}$$

Where,

$\hat{P}_{t-1}^1$: The price of the previous good, for the $t-1$ period.

- **Step 4:** In the quality adjustment, eliminate proposal observations whose adjusted IVE is outside the range [0.8 – 2.5]

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- **Step 5:** Export prices and adjusted IVEs to the CPI calculation system.

7.3.3 Price imputation

Price imputation assigns an estimated value to a price of a variety that has not been directly observed or collected. The absence of prices may be due to the seasonality of the product, the temporary or permanent disappearance of a variety from the market, or the decision of establishment to stop selling the variety or product.

7.3.3.1 Treatment of missing prices

In general, the following situations require price imputation:

(a) **The variety is temporarily out of stock in the current period**: The variety requested is not present in the establishment at the time of monthly price collection[74], but information is available that the variety is still being sold in the establishment.

(b) **The variety is seasonal, and it is out of season:** The variety is unavailable as result of its cyclical nature. In this case, replacements are not necessary, and the value should be imputed.

(c) **The variety will be permanently unavailable in the establishment:** The variety of the basket is no longer sold in the establishment, and it will not be sold in the future. In this case, in addition to imputation, a replacement for the variety should be proposed. If a replacement variety cannot be found, a replacement for the establishment should be sought.

(d) **The variety will be permanently unavailable in the market:** The variety will not be sold in any establishment in the future.

(e) **The variety is being temporarily provided free of charge or subsidized by a private company or public entity:** The price of the variety should be imputed as long as this situation is maintained. If it is permanent, it should be replaced. When the product is no longer offered free of charge, it is incorporated again.

7.3.3.2 Price imputation rules

Missing prices should be imputed or estimated to reach the total number prices in the month of analysis. Imputation is the last resource to be used, that is, it is used when all other methods of completing the information for a missing price during the monthly data collection period have been exhausted.

An imputed price enters the calculation month, and it can be imputed for up to two consecutive periods[75] if a replacement has been proposed according to the technical guidelines associated to each variety.

The imputation rules for **non-seasonal varieties and seasonal varieties in season** are applied in an ascending sequential manner, from the type of establishment[76] to the level of

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[74] Depending on the variety, the establishment may be visited more than once per month. Revisiting the establishment is sometimes feasible during the week for price recovery.

[75] This rule does not apply to seasonal products, which can be imputed for a longer period.

[76] Type of establishment is defined as a group of establishments that share similar qualities (e.g., supermarkets).

national product. This ascending imputation process in index aggregates is called imputation levels.

The first level at which it is possible to impute will be defined when the criterion of representativeness is met in the ascending evaluation. This criterion is met if, for an imputation level, the amount of prices collected for the month is equal to or greater than 35% of the total prices expected in that period in the corresponding type of establishment. The calculation is as follows:

$$Representativeness = \frac{Actual\ number\ of\ prices_t}{Total\ expected\ number\ of\ prices_t} \cdot 100$$

The four levels of evaluation in ascending order are type of establishment, variety by macro-zone, product by macro-zone, and national product. These levels are described below.

(a) Imputation by type of establishment of the variety by macro-zone

When prices of a variety-establishment are missing in the month of calculation, the representativeness at the type-of-establishment level is imputed with the variation of prices of the variety in the same types of establishment within the macro-zone.

$$ITIPO_t^{s,v,m,p} = \prod_{e=1}^{ns_t^{v,m,p}} (IVE_t^{e,v,m,p})^{1/ns_t^{v,m,p}}$$

$$P_t(imputed) = P_{t-1} \cdot ITIPO_t^{s,v,m,p}$$

Where,

$ITIPO_t^{s,v,m,p}$: Index of the type of establishment s by variety v in macro-zone m associated with product p in period t.

$ns_t^{v,m,p}$: Number de establishments of type s for variety v in macro-zone m associated with product p in period t.

$IVE_t^{e,v,m,p}$: Relative price of establishment e of variety v in macro-zone m associated with product p in period t[77].

$P_t(imputed)$: Imputed price in month t.
P_{t-1}: Price in month $t - 1$.

(b) Imputation by variety by macro-zone

When the type of establishment is not representative, the variety is checked to see if it is representative. If so, it can be imputed through the variation of the variety.

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[77] For definitions of this index and others presented in this section, see section 8.1.2.

$$IVAR_t^{v,m,p} = \prod_{e=1}^{ne_t^{v,m,p}} (IVE_t^{e,v,m,p})^{1/ne_t^{v,m,p}}$$

$$P_t(imputed) = P_{t-1} \cdot IVAR_t^{v,m,p}$$

Where,

$IVAR_t^{v,m,p}$: Index of variety v in macro-zone m associated with product p in period t.

$IVE_t^{e,v,m,p}$: Relative price of establishment e of variety v in macro-zone m associated with product p in period t.

$ne_t^{v,m,p}$: Number de establishments e for each variety v in macro-zone m associated with product p in period t.

$P_t(imputed)$: Imputed price for month t.
P_{t-1}: Price in month $t - 1$.

(c) Product imputation by macro-zone

If the criterion of representativeness at the variety level by macro-zone is not met, and representativeness at the product level by macro-zone can be achieved, it is possible to impute with the variation at this level.

$$IPROM_t^{m,p} = \prod_{v=1}^{nv_t^{m,p}} (IVAR_t^{v,m,p})^{1/nv_t^{m,p}}$$

$$P_t(imputed) = P_{t-1} \cdot IPROM_t^{m,p}$$

Where,

$IPROM_t^{m,p}$: Index of the product in macro-zone m associated with product p in period t.

$nv_t^{m,p}$: Total number of varieties v in macro-zone m associated with product p in period t.

$P_t(imputed)$: Imputed price for month t.
P_{t-1}: Price in month $t - 1$.

(d) Imputation by national product

If the product by macro-zone is not representative, the representativeness of the product at the national level is reviewed.

It should be noted that there are weights at this level of aggregation and all higher levels. Therefore, the weight of the missing data will be redistributed in the actual records, and it can be used for imputation. The purpose of this process is to assure that the sum of weights is equal to 100%.

$$IPRO_t^p = \sum_{m=1}^{4} \left(IPROM_t^{m,p} \right) \cdot w_m^p$$

$$P_t(imputed) = P_{t-1} \cdot IPRO_t^p$$

Where,

$IPRO_t^p$: Index of product p in period t.

w_m^p: Weight of macro-zone m associated with product p.

$P_t(imputed)$: Imputed price in month t.

P_{t-1}: Price in month $t - 1$.

If none of these levels are representative and for some extraordinary cases, the carry-forward method is used. In other words, for the month in which the price of a variety is not available, the last price recorded is repeated (carried forward). This method is used until the price is available again.

In addition, the carry-forward method of imputation with the last price recorded is used for missing prices of **seasonal varieties outside their season**. The carry-forward method is used in this case for the completeness of the database because these prices do not enter the calculation until the varieties reappear.

CHAPTER 8 - ANALYSIS OF INDEX RESULTS

8.1 Generation of results

The aggregation system used in the CPI ensures that it will always be possible to obtain the overall index from any level of the aggregation structure (product, subclass, class, group, and division).

The CPI construction process consists of two stages:

(a) **First stage:** Indices of the elementary aggregates are calculated with the price information of each variety-establishment. This stage completes the database required for the next stage.
(b) **Second stage:** The elementary indices are combined to obtain the higher-level indices. This process is described in the next section.

In the first stage, aggregates are calculated at the elementary level for the relative prices of each variety-establishment, variety, and product. Product is the first level of publication available to users[78].

In the second stage, the elementary indices are grouped to obtain the price indices for each of the products in the CPI basket. Then, by successive aggregations, the subclasses, classes, groups, and divisions are constructed, until the CPI is finally obtained.

The aggregation methods for the various levels of the CPI are shown in the following table.

TABLE 15. AGGREGATION METHODS

Level of aggregation	Method of aggregation	
From divisions to CPI	Arithmetic mean	
From group to division	Arithmetic mean	
From class to group	Arithmetic mean	Weighted
From subclass to class	Arithmetic mean	
From product to subclass	Arithmetic mean	
From product (mz) to product	Arithmetic mean	
From variety to product (mz)	Geometric mean (*)	Self-weighted
From variety-establishment to variety	Geometric mean	

Note: (mz) signifies that this aggregation is done for each of the four macro-zones.
(*) Weighted products with special treatment are excluded. The method of aggregation is by geometric mean or weighted arithmetic mean, as appropriate.
Source: Own elaboration.

In the first stage of aggregation, varieties with special treatment are grouped with a weighted geometric or arithmetic mean, as appropriate.

For products without special treatment, the variations of the elementary aggregates are grouped with a self-weighted geometric mean. A geometric mean is used in the aggregation

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[78] In order to safeguard statistical confidentiality under Law No. 17.374, indices of variety and variety-establishment are not published on the institution's website.

because a high degree of substitution exists between varieties, (i.e., households can choose among the varieties available for each product in the CPI basket). For example, if a consumer wants to buy apples, the apples may be red or green, they may be marketed in bulk or packed by the producer, and they may be purchased in a supermarket, a street market, or a greengrocer's shop. With these characteristics, a variety can be defined.

8.1.1 Incorporation of prices in calculation

Prices collected from different sources and entered into the system are incorporated according to the nature of their collection or as the result of their edition or imputation.

The majority of products are **collected only once a month, and they do not require a special calculation** to obtain the price to be incorporated in the CPI calculation. In these cases, the price that is collected and entered into the system is the same as the price that enters the CPI calculation, except when it requires treatment according to the rules of the system[79].

If **more than one price is collected in the establishment** during the month because the price is collected weekly or fortnightly and the product does not require special calculation, the simple average of these prices is calculated for each establishment. Fruits and vegetables whose prices are collected weekly in street markets are considered to be from a single establishment, and the price used in the calculation is the average of each collection.

For **products with special price construction[80]**, the price constructed according to the aggregation rules of each variety is used in the calculation.

8.1.2 Elementary aggregates of the index

Once the prices to be included in the CPI calculation have been determined, the indices are calculated from elementary unit (variety-establishment) to the index at the product level.

(a) Index of variety-establishment (IVE)

These variations are obtained as the quotient of the current month's price and the previous month's price:

$$IVE_t^{e,v,m,p} = \frac{Price_t^{e,v,m,p}}{Price_{t-1}^{e,v,m,p}}$$

Where,

$IVE_t^{e,v,m,p}$: Relative price of establishment e of variety v in macro-zone m associated with product p in period t.

$Price_t^{e,v,m,p}$: Price in establishment e of variety v in macro-zone m associated with product p in period t.

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[79] These treatments can be the result of changes in the unit of measurement of the variety collected, discounts in amount or percentage, or an increase in units per package, among other changes.
[80] See section 5.10.1 for the definition.

$Price_{t-1}^{e,v,m,p}$: Price in establishment e of variety v in macro-zone m associated with product p in period $t-1$.

(b) Aggregation from variety-establishment to variety by macro-zone ($IVAR$).

The aggregation process begins with the calculation of the variety indices by macro-zone, which use a geometric mean of the relative prices associated with a specific variety, as follows:

$$IVAR_t^{v,m,p} = \prod_{e=1}^{ne_t^{v,m,p}} (IVE_t^{e,v,m,p})^{1/ne_t^{v,m,p}}$$

Where,

$IVAR_t^{v,m,p}$: Index of variety v in macro-zone m associated with product p in period t.

$ne_t^{v,m,p}$: Number de establishments e for each variety v in macro-zone m associated with product p in period t.

In cases where the variety has **weights under the level of product for establishments,**[81] the calculation is as follows:

$$IVAR_t^{v,m,p} = \prod_{e=1}^{ne_t^{v,m,p}} \left(IVE_t^{e,v,m,p}\right)^{w_e^{v,m,p}}$$

Where,

$w_e^{v,m,p}$: Weight of establishment e for each variety v in macro-zone m associated with product p.

(c) Aggregation from variety to product by macro-zone ($IPROM$)

The aggregation process continues towards the product indices by macro-zone, which uses to a geometric mean of the variety indices by macro-zone, as follows:

$$IPROM_t^{m,p} = \prod_{v=1}^{nv_t^{m,p}} (IVAR_t^{v,m,p})^{1/nv_t^{m,p}}$$

Where,

$IPROM_t^{m,p}$: Index of the product in macro-zone m associated with product p in period t.

$nv_t^{m,p}$: Total number of varieties v in macro-zone m associated with product p in period t.

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[81] See section 5.10.1 for the definition.

When the product has **weights for varieties below the product level**[82], the calculation is as follows:

$$IPROM_t^{m,p} = \prod_{v=1}^{nv_t^{m,p}} \left(IVAR_t^{v,m,p}\right)^{w_v^{m,p}}$$

Where,

$w_v^{m,p}$: Weight of the variety v in macro-zone m associated with product p.

(d) Aggregation from macro-zone products to product ($IPRO$)

Aggregation continues towards the product index, which is obtained from the weighted arithmetic average of the product indices of the four macro-zones m:

$$IPRO_t^p = \sum_{m=1}^{4} \left(IPROM_t^{m,p}\right) \cdot w_m^p$$

Where,

$IPRO_t^p$: Index of product p in period t.

w_m^p: Weight of macro-zone m associated with product p.

8.1.3 Higher-level aggregates of the index

The higher levels, from the product level to the overall CPI level, use the weighted arithmetic mean. The weights assigned to each product in the process of constructing the current basket are used for weighting.

(a) Calculation of the micro-index of the product ($MIPRO$)

From this level, micro-indices are constructed and a reference period ($MIPRO_{Jan23}^p = 100$) is defined. This level is the first that is published for the public.

$$MIPRO_t^p = MIPRO_{t-1}^p \cdot IPRO_t^p$$

Where,

$MIPRO_t^p$: Micro-index of product p in period t.

(b) Calculation of the micro-index of subclass ($MISCL$)

$$MISCL_t^{sc} = \sum_{p=1}^{np^{sc}} MIPRO_t^p \cdot w_p^{sc}$$

Where,

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[82] See section 5.10.1 for the definition.

$MISCL_t^{sc}$: Micro-index of subclass s in period t.

np^{sc}: Number of products p in subclass sc.

w_p^{sc}: Weight of product p in subclass sc.

(c) Calculation of the micro-index of class ($MICLA$)

$$MICLA_t^c = \sum_{sc=1}^{nsc^c} MISCL_t^{sc} \cdot w_{sc}^c$$

Where,

$MICLA_t^c$: Micro-index of class c in period t.

nsc^c: Number of subclasses s in class c.

w_{sc}^c: Weight of subclass sc in class c.

(d) Calculation of the micro-index of group ($MIGRU$)

$$MIGRU_t^g = \sum_{c=1}^{nc^g} MICLA_t^c \cdot w_c^g$$

Where,

$MIGRU_t^g$: Micro-index of group g in period t.

nc^g: Number of classes c in group g.

w_c^g: Weight of class c in group g.

(e) Calculation of the micro-index of division ($MIDIV$)

$$MIDIV_t^d = \sum_{g=1}^{ng^d} MIGRU_t^g \cdot w_g^d$$

Where,

$MIDIV_t^d$: Micro-index of division d in period t.

ng^d: Number of groups g in division d.

w_g^d: Weight of group g in division d.

(f) Calculation of the Consumer Price Index (CPI)

The overall index and is obtained by aggregating the MIDIV:

$$CPI_t = \sum_{d=1}^{13} MIDIV_t^d \cdot w_d \cdot 100$$

Where,

CPI_t: Consumer price index in period t.

w_d: Weight of division d in the basket.

8.1.4 Calculation of variations

The different CPI variations regularly published by INE are calculated as follows:

(a) **Monthly variation**: The change in the CPI in month t compared to the previous month $t-1$, which represents the average monthly variation of prices in the economy. The monthly variation is calculated as follows:

$$Monthly\ variation\ CPI_t = \left(\frac{CPI_t}{CPI_{t-1}} - 1\right) \cdot 100$$

(b) **Cumulative variation**: Measures the variation of prices from month t of year y compared to December of the previous year $(y-1)$. The cumulative variation is calculated as follows:

$$Cumulative\ variation\ CPI_{t,y} = \left(\frac{CPI_{t,y}}{CPI_{Dec,y-1}} - 1\right) \cdot 100$$

(c) **Twelve-month or year-on-year variation**[83]: Measures the variation of the CPI in current month compared to the same month in the previous year $(t-12)$. The twelve-month variation is calculated as follows:

$$Twelve-month\ variation\ CPI_t = \left(\frac{CPI_t}{CPI_{t-12}} - 1\right) \cdot 100$$

When the **price variation for any given year** is published, it is measuring the **change in prices between January 1 and December 31 of that year**[84], which in mathematical terms means calculating the variation of the CPI for December of one year with respect to the CPI for December of the previous year.

It is important to mention that these formulas for calculating variations are also applicable to the indices of division, group, class, subclass, and product.

8.1.5 Calculation of impacts

People are often interested in knowing which products, subclasses, classes, groups, and divisions most affected the evolution of the CPI in a given month. The impacts of that month

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[83] When calculating the change in the index in December, the cumulative variation and the twelve-month variation are the same.

[84] This same technical precision also applies to monthly calculations (i.e., the variation of prices in the economy between the first and last day of the month). Thus, the prices observed on the first day of the month are those being measured up to the last day of the previous month.

are therefore calculated and published according to the results compared to the previous month, according to cumulative variation from December of the previous year, and according to the results compared with the same month of the previous year. The way in which these impacts are calculated is explained below:

$$Monthly\ impact\ of\ the\ index_t^i = \left[\frac{Index_t^i - Index_{t-1}^i}{CPI_{t-1}}\right] \cdot w_i \cdot 100$$

$$Cumulative\ impact\ of\ the\ index_{t,y}^i = \left[\frac{Index_{t,y}^i - Index_{Dec,y-1}^i}{CPI_{Dec,y-1}}\right] \cdot w_i \cdot 100$$

$$Twelve-month\ impact\ of\ the\ index_t^i = \left[\frac{Index_t^i - Index_{t-12}^i}{IPC_{t-12}}\right] \cdot w_i \cdot 100$$

Where,

$Index_t^i$: The aggregate micro-index i (MIPRO, MISCL, MICLA, MIGRU, and MIDIV) under analysis for period t.

$Index_{t,y}^i$: The aggregate micro-index i (MIPRO, MISCL, MICLA, MIGRU, and MIDIV) under analysis for period t of y.

w_i: Weight of the aggregate i in the basket.

It is important to note that the sum of the monthly impacts is equal to the monthly variation of the CPI (or of the particular aggregate under analysis) in the month being calculated, and it may vary from the figures that INE publishes in its bulletins as result of the number of unpublished decimals used in the calculation. The same relationship holds between cumulative impacts and cumulative variations and between twelve-month impacts and twelve-month variations.

8.1.6 Analytical indices

Although the index referred to in this Manual is the Consumer Price Index, other product groupings share certain characteristics and provide specific information on price variations in each of these subsets. These are known as analytical indices, and they are described below.

1. **CPI except food and energy**: This index results from excluding the products of the food and energy indices from the overall index.
2. **Fresh fruits and vegetables:** This index includes products classified as fresh fruits and vegetables.
3. **Food:** The food index consists of food products and non-alcoholic beverages that make up the totality of Division 1 of the current basket of products.
4. **Services:** This index includes products classified as services.

5. **Goods:** This index encompasses all products that are not services but are part of the CPI basket.
6. **Energy:** This index consists of goods associated with energy and fuels.
7. **Tradable products:** This index includes the set of products that can be traded internationally.
8. **Non-tradable products:** In contrast to the previous index, this index shows the price evolution of the set of products that cannot be traded internationally.
9. **Housing:** This index, which was added to the CPI base year 2023 by the request of the OECD, consists of products associate with living in and maintaining a home.
10. **Services except housing:** This index, which was also added by the request of the OECD, consists of elements of the index of services, but it excludes housing.
11. **Volatile items of the CPI:** This index measures inflation of goods and services that are highly volatile, that is, those that are not included in the Measurement of the CPI without volatile items.
12. **CPI without volatile items:** This index is a core inflation measure used by the Central Bank of Chile since December 2019 (Carlomagno et al., 2021). It consists of a fixed exclusion index that permanently excludes product groupings whose price variation is considered uninformative for the inflationary trend.

The following table shows the weight within the 2023 CPI basket and the number of products that comprise it.

TABLE 16. COMPOSITION OF ANALYTICAL INDICES CPI BASE 2023=100[85]

Analytical Index	Number of products	Weight in the 2023 CPI basket (%)
CPI except food and energy	195	69.25
Fresh fruit and vegetables	16	3.21
Food	81	22.15
Services	67	44.87
Goods	216	55.13
Energy	7	8.59
Tradable products	220	58.27
Non-tradable products	63	41.73
Housing	7	9.09
Services except housing	64	36.56
CPI volatile items	135	37.95
CPI less volatile items	148	62.05

Source: Own elaboration.

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[85] For more information, see the methodology section of the website (in Spanish): https://www.ine.gob.cl/estadisticas/economia/indices-de-precio-e-inflacion/indice-de-precios-al-consumidor

8.2 Validation and interpretation of results

The methodology for the construction of the CPI and the monthly variation of prices in the basket of products provides an overall index that cannot by itself be interpreted. The interpretation of the CPI requires a comparison with other periods: the variation of the overall index compared to the previous month, the cumulative variation of the year to date, and the variation compared to the same month of the previous year (i.e., the twelve-month or year-on-year variation). The relative impacts of these variations should also be considered.

Generally, the most important variations and the products with the greatest impact are analyzed, and these measurements lead to an understanding of the change in prices of the products in the basket, which are representative of household consumption.

Once the price data for the products of the basket are processed and the indices are obtained at the different levels of disaggregation, a series of revisions are made to the aggregate results; these revisions are in addition to those made during the month.

8.3 Method of disclosure control

Because the monthly publication of the CPI (statistical bulletin and databases) includes only variations and impacts from the product level to the division level, the information does not need to be **anonymized**.

After the monthly publication of the CPI, anonymized micro-databases are made available to users for a set of products. This price information is used in the calculation of the index.

For these reasons and for safeguarding information subject to statistical secrecy, data are anonymized prior to disclosure. Anonymization consists of excluding such identifying variables as brand names, trade names, and any name that identifies the person providing the information about the published data.

To protect CPI results before their official publication, access to the information is restricted to a list of people essential for the calculation of the index and its dissemination.

CHAPTER 9 – DISSEMINATION OF THE INDEX

INE makes the results of the index available to all users on the institutional website at 8:00 a.m. on the first eight days of the month following the calculation period. The calendar of CPI publications is available on the institutional website, and it is updated at the end of each year.

On each occasion, the overall index is published, together with the variation levels of disaggregation (by division, group, class, subclass, and product) for the current month, in addition to the monthly, cumulative, and twelve-month variations and impacts; the analytical indices; and the historical, linked, and referential series[86]. This information is summarized in the publication of the CPI statistical bulletin.

Because the CPI uses a monthly price collection process, price variations cannot be calculated for specific dates; only price variations from one month to another can be calculated[87].

The INE website provides users with the databases and metadata for the information mentioned in the previous paragraph. For more details, see annexes 6 and 7 of this Manual.

In publications, the figures are rounded to two decimal places for indices, one decimal place for variations, and three decimal places for impacts. For weights used to construct the aggregates, five decimal places are used. Finally, all calculations of the indicator in the computer system use twelve decimal places.

Because users have accesses to an index with two decimal places while INE uses twelve, differences may exist between users' calculations and INE's published calculations, particularly when constructing the CPI variation through monthly impacts or calculating variations between periods.

It should be noted that INE does not have digitalized information for levels below the overall index for periods prior to January 2009, so more disaggregated data can only be provided for January 2009 or later.

The CPI base 2023=100 becomes effective as of January 2024, and its first official variation will be published on Thursday, 8 February 2024 at 8:00 a.m.

According to statistical planning, the next update of the index base (CPI base 2028=100) is planned for five years after the current base year. In 2028, the methodology, the basket of products, and their respective weights will be updated and the results will be published in 2029.

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[86] All of these series are available on the institutional website http://www.ine.gob.cl under Estadísticas > Indices de precios e inflación > Índice de Precios al Consumidor.

[87] For example, the price variation cannot be measured between 15 December 2021 and 15 January 2022. In this case, the price variation from December 2021 to January 2022 should be used.

The most important methodological changes are made when the base is updated, but the CPI is constantly under review to identify opportunities for improvement. Thus, whenever concepts, definitions, and methodologies used in the collection, elaboration, and calculation of the index are redesigned or revised, these changes will be promptly reported through technical supplements published on the website[88]. These supplements update the methodology set forth in the Manual, and they will become official once they are published on the institutional website.

To improve communication with the public interested in the information produced, INE organizes technical committees and public conferences. The purpose of these activities is to inform users, experts, and the public about modifications to the CPI methodology and to receive feedback for the continuous improvement of the indicator and the information provided to the public[89].

Finally, whenever the monetary figures need to be updated between different periods, the public is encouraged to use the CPI Calculator available on the institutional website, a tool whose use is detailed in Annex 8.

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[88] Each methodological update is reported in a timely manner by means of technical supplements published on the institutional website.

[89] The section "Comités y Notas Técnicas" (Committees and Technical Notes) of the institutional website provides information on each Technical Committee on methodological and operational topics of the CPI base year 2023=100: https://www.ine.gob.cl/estadisticas/economia/indices-de-precio-e-inflacion

CHAPTER 10 – GLOSSARY

Acquisition: The moment in which the seller who supplies goods and services is actually paid. It is not necessarily the time when the expenses occur. Acquisitions can be divided into two kinds:

- **Acquisition of a good:** The moment in which the legal or effective economic ownership of the good passes to the consumer.
- **Acquisition of a service:** The moment in which a service provided by a producer is completed to the satisfaction of the consumer.

Acquisitions approach: An approach in which the total value of goods and services acquired within the country during the period are recorded, regardless of the period in which they are used.

Aggregation: The process of combining or adding sets of values, prices, or indices to obtain a total of values or a set of elements. An aggregate is the result of the process of aggregation.

Arithmetic mean: The average value obtained by adding all the numbers in a set and then dividing the sum by the number of numbers in that set. The arithmetic mean of variable x is as follows:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^{n} x_i$$

Base period: The period with which all other periods are compared. However, the term has additional meanings, including the following three elements:

- **Weight reference period:** The period in which the information necessary to construct the weights of the products in the basket was obtained.
- **Reference period of the index:** The period for which the value of the CPI is set at 100.
- **Price reference period:** A period of defined duration whose prices are compared with other periods. The price reference period is often designated as period 0.

Basket: A specified set of goods and services. In the context of the CPI, the basket may consist of the quantities of consumption goods and services actually acquired by households in a given period, or it may consist of hypothetical quantities.

Carryforward: Process in which a missing price in some period is imputed as being equal to the last observed price of the good or service. This price is repeated until the price is again available at the establishment.

Change of base year: The purpose of rebasing is to update the basket of goods and services to reflect changes in consumption patterns and to incorporate methodological improvements.

For the period of the indicator, changing the base year has different meanings depending on the context. It may mean adjusting the weights, the reference period of prices, or the

reference period of the index. For the change in base year undertaken every five years, the three mentioned adjustments are implemented.

Characteristics: The tangible and intangible attributes of a good or service that can be used to identify and classify it. Characteristics that contribute to the determination of prices are known as constituent characteristics or price determinants.

Classification of Individual Consumption According to Purpose (COICOP): The functional categorization of the system of national accounts (SNA). The COICOP enables a clear distinction to be made between goods and services and provides statistics that, according to experience, are of general interest for a wide variety of analytic uses and that provide users the means to restructure key aggregates of the SNA for particular kinds of analysis.

Goods and services are divided into thirteen divisions (the highest level of aggregation), which are formed from the aggregation of groups. The groups are composed of classes, and classes are further divided into subclasses. Subclasses are the result of the aggregation of products, which consist, in turn, of an aggregation of varieties.

Comparable variety: A variety that replaces another that is not present in an establishment at the moment of price collection. A comparable variety has similar attributes (characteristics), and it is of similar quality to the variety it replaces.

Component: A subset of goods and services that form a defined aggregate.

Consumers: An individual person living alone or groups of persons living together who form households.

Data collector: An official of INE charged with collecting the prices of goods and services that form part of the CPI basket.

Discount price: The price whose level has been temporarily modified in an establishment (or in several of them) for promotional purposes.

Elementary aggregate: The smallest aggregate of a minimum value and of relative importance for the purposes of the CPI. The elementary aggregate is an aggregate of prices, and it does not have weight within the structure of the basket.

Expenditures: The amount that purchasers pay or agree to pay to sellers in exchange for goods or services that sellers provide to them or to other institutional units designated by the purchasers.

Geometric mean: The average value calculated by taking the product of all the numbers in a set and then taking the nth root, where "n" is the number of numbers in that set. La geometric mean of variable x is as follows:

$$GM_x = \sqrt[n]{\prod_{i=1}^{N} x_i} = \sqrt[n]{x_1 \cdot x_2 \cdot \cdots \cdot x_N}.$$

Good: A physical object for which there is demand. A good must be subject to ownership rights (appropriable), and its possession must be transferable between agents.

Hedonic method: A regression model in which the market prices of different products are expressed as a function of their characteristics. Each regression coefficient is treated as an estimate of the marginal contribution of that characteristic to the total price (all else remaining constant).

Household: One or more persons who, whether or not related, reside in the same dwelling or part thereof and benefit from the same budget that is mainly for food.

Impact: Measurement of how the overall level of an index has changed as result of price variations of a specific group, assuming that prices in the other groups have remained constant.

Imputation: A procedure in which the variation of an unreported variable is assigned the variation of another similar variable or of other more or less similar variables.

Index number: A statistical measurement for the study of fluctuations or variations of one or more variables in relation to time and space.

Inflation: A generalized and sustained increase in the prices of goods and services in the market over a given period.

Laspeyres price index: An index that uses a vector of fixed weights. The index is associated with the basket of goods and services of a base period, and it is calculated in the following manner:

$$P_{Laspeyres}(p^0, p^1, q^0, q^1) = \frac{\sum_{i=1}^{n} p_i^1 q_i^0}{\sum_{i=1}^{n} p_i^0 q_i^0}$$

Where,

p_i^0: Price in period 0 of the good or service i.

p_i^1: Price in period 1 of the good or service i.

q_i^0: Number of the goods or services acquired i in base period 0.

n: Total number of goods and services in the basket.

This can be expressed as follows:

$$P_{Laspeyres}(p^0, p^1, q^0, q^1) = \frac{\sum_{i=1}^{n} p_i^1 q_i^0}{\sum_{i=1}^{n} p_i^0 q_i^0} = \frac{\sum_{i=1}^{n} \left(\frac{p_i^1}{p_i^0}\right) p_i^0 q_i^0}{\sum_{i=1}^{n} p_1^0 q_i^0} = \sum_{i=1}^{n} \left(\frac{p_i^1}{p_i^0}\right) \cdot s_i^0$$

Therefore, the Laspeyres Index can be expressed as the arithmetic average of *n* price ratios $\left(\frac{p_i^1}{p_i^0}\right)$, weighted by share of expenditure in base period (s_i^0). Where $s_i^0 = \frac{p_i^0 q_i^0}{\sum_{i=1}^{n} p_i^0 q_i^0}$.

Linking: The process of connecting or uniting two series of price indices that overlap in one or more periods.

Non-comparable variety: A variety that replaces another that is not present at the moment of price collection. A non-comparable variety has different attributes (characteristics), and it is of a different quality from the variety it replaces.

Non-probability sampling: Also known as "directed sampling" or "sampling by expert judgment", a non-random selection of outlets or products made on the basis of knowledge or judgment of the person in charge.

Outlet: A place of contact between the supplier of goods or services and the consumer. Outlets are also referred to as "retail outlets" or "retail stores", although they may also include wholesale outlets that sell directly to the final consumer.

Outliers: A term usually used to designate any extreme value in the data set surveyed. For the CPI, the term outlier is used to refer to an extreme value for a price or relative price that requires further investigation or that has already been verified as correct.

Payments approach: An approach in which actual expenditures made by households to access consumer goods and services are recorded. This approach is often used when the main objective of the index is to adjust remunerations or income.

Price imputation: Procedure in which a variety with no price is available is assigned the price variation of another variety or others with more or less similar characteristics.

Price to be recorded (for calculation): The price that enters the CPI calculation base 2023=100. It includes all non-discriminatory taxes, special offers, and promotions of the good or service. It must be the price of universal access, that is, the price at which any person can acquire the good or service.

Price: The nominal value (in monetary units) of the transaction of a good or service. The price may or may not include home delivery, but it must include all applicable indirect taxes or specific taxes, non-discriminatory discounts, and discounts not subject to the use of a specific means of payment.

Product: A generic term for a good or service that has a defined purpose and for which there is an expenditure weight. For the CPI, a product represents an elementary aggregate.

Products that require special calculation: Products whose price collection is not from a direct observation of the source; these products thus require a previously determined ad hoc treatment that may consist of the creation of a standard bill or of the sum of components.

Qualified respondent: The person who is qualified to provide the information required in a statistical operation because they have the capacity, age, and knowledge to respond on the subjects under study. This person can answer for themselves and for the members of the household in household surveys.

Quality adjustment: Adjustment to the variation in the price of a product whose characteristics change over time. Its purpose is to eliminate the influence of the change in characteristics on the observed price. The adjustment is needed when the price of a replacement product must be compared with the price of the product it replaces.

Registration: The process of verification of goods and services available in establishments, companies, and households.

Relative price: The quotient of the price of an individual product in period t over the price of the same product in the previous period $t - 1$.

Sampling frame: A list of units (companies, establishments, dwellings, stores, etc.) in the universe from which a sample can be taken for statistical purposes.

Scanner data: A non-traditional process of obtaining data for the calculation of the CPI from the information from company databases, which contain the record of the sales of each of their products at the cash register in all their establishments.

Seasonal products: Goods or services that (a) are not available in certain seasons (months) of the year or (b) are available all year, but their prices and the quantity available are subject to regular fluctuations that are synchronized with the season or time of year.

Specification: A description or list of the characteristics that can be used to identify a sampled product whose price is to be collected.

Standard bill: An analytic construct that enables the calculation of the amount that a household must pay for the consumption of a service. The standard bill consists of a set *n* of compulsory and supplementary items (components) that depend on prior consumption. Usually, the value includes both a fixed charge that is independent of prior consumption and one or more variable items that depend on prior consumption.

Transfer: A transaction in which one institutional unit provides a good, service, or asset without receiving any good, service, or asset in return.

Urban: The CPI uses the census definition, which indicates that an "urban entity" is a set of concentrated dwellings with more than 2,000 inhabitants, or between 1,001 and 2,000 inhabitants when 50% or more of its economically active population is engaged in secondary or tertiary activities. In an exceptional case, centers that fulfill tourist and recreational functions and that have more than 250 concentrated dwellings but that do not meet the population requirement are considered urban entities. An urban area is the set of urban entities.

Uses approach: A methodology in which the value of a good or service is recorded at the moment in which it is consumed.

Variety: A good or service that forms the basic or elementary unit of the CPI basket. Variety is defined according to a set of pre-established attributes or specifications such as brand, description, size, contents, packaging, and origin, among other specific characteristics.

Web scraping: The process of automated collection of data from the Internet through a set of software techniques to extract information from websites (web pages) or through an application-programming interface.

Weighted arithmetic mean: The average value obtained by adding each number in a set multiplied by its respective weight and then dividing the result by the sum of the weights assigned to each number in that set.

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i \cdot w_i}{\sum_{i=1}^{n} w_i}$$

Weighted geometric mean: The average value obtained by multiplying each number in a set by its respective weight, then taking the nth root of the weighted product.

$$WGM_x = \left(\prod_{i=1}^{N} x_i^{w_i} \right)^{\frac{1}{\Sigma_i w_i}} = (x_1^{w_1} \cdot x_2^{w_2} \cdot \ldots \cdot x_N^{w_N})^{\frac{1}{(w_1 + w_2 + \cdots w_N)}}$$

Where x_i are values and w_i the quantity of pesos of each value.

Weights: Proportions; for the CPI, these proportions are the relative expenditure of households on the products they consume.

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CHAPTER 12 – ANNEXES

Annex 1. Products adjusted for COVID-19

CPI code	Description CPI 2023	Adjustment criterion
51111	BEDS	Option 1
51112	LIVING ROOM FURNITURE	Option 1
51113	KITCHEN FURNITURE	Option 1
51114	DINING ROOM FURNITURE	Option 1
51115	MATTRESSES	Option 1
51116	OFFICE FURNITURE	Option 1
51121	GARDEN AND CAMPING FURNITURE	Option 1
51131	FURNISHINGS	Option 1
53111	REFRIGERATORS	Option 1
53112	STOVES	Option 1
53113	ELECTRIC AND MICROWAVE OVENS	Option 1
53121	WASHING MACHINES	Option 1
53141	VACUUM CLEANERS	Option 1
53151	OTHER MAJOR HOUSEHOLD APPLIANCES	Option 1
55111	ELECTRIC TOOLS AND ACCESSORIES	Option 1
56211	DOMESTIC SERVICE	Option 1
73211	DOMESTIC AIR TRANSPORT	Option 1
73221	INTERNATIONAL AIR TRANSPORT	Option 1
73311	COMBINED PASSENGER TRANSPORT	Option 1
81111	MOBILE TELEPHONE EQUIPMENT	Option 1
81211	COMPUTERS	Option 1
81311	TELEVISION SETS	Option 1
81312	HEADPHONES AND SPEAKERS	Option 1
81411	TECHNOLOGICAL DEVICES AND ACCESSORIES	Option 1
91111	EQUIPMENT FOR GAMES AND RECREATION	Option 1
94211	SERVICES PROVIDED BY RECREATIONAL CENTERS	Option 1
94221	SERVICES ASSOCIATED WITH THE PRACTICE OF SPORTS	Option 1
94231	TICKETS FOR SPORTING EVENTS	Option 1
95111	MUSICAL INSTRUMENTS	Option 1
98111	INTERNATIONAL PACKAGE HOLIDAYS	Option 1
98112	DOMESTIC PACKAGE HOLIDAYS	Option 1
132112	WATCHES	Option 1
72431	ROADWORTHINESS TESTS	Option 2
72432	DRIVER'S LICENSES	Option 2
73131	SCHOOL TRANSPORT	Option 2
97111	EDUCATIONAL TEXTS	Option 2
101113	EARLY CHILDHOOD EDUCATION	Option 2

Source: Own elaboration.

Annex 2. CPI 2023 Basket

STRUCTURE	D	G	C	SC	P	DESCRIPTION CPI 2023	WEIGHT 2023=100
DIVISION	1	0	0	0	0	FOOD AND NON-ALCOHOLIC BEVERAGES	22.15348
GROUP	1	1	0	0	0	FOOD	19.91270
CLASS	1	1	1	0	0	BREAD, CEREAL, FLOUR, AND PASTA	4.29417
SUBCLASS	1	1	1	1	0	RICE	0.22304
PRODUCT	1	1	1	1	1	RICE	0.22304
SUBCLASS	1	1	1	2	0	CEREAL FLOUR	0.13801
PRODUCT	1	1	1	2	1	WHEAT FLOUR	0.10111
PRODUCT	1	1	1	2	2	OTHER CEREAL FLOURS	0.03690
SUBCLASS	1	1	1	3	0	BREAD AND OTHER BAKERY PRODUCTS	3.36173
PRODUCT	1	1	1	3	1	BREAD	2.21583
PRODUCT	1	1	1	3	2	PASTRIES	0.62508
PRODUCT	1	1	1	3	3	BISCUITS	0.44886
PRODUCT	1	1	1	3	4	PREPARED SAVORY DOUGHS	0.07196
SUBCLASS	1	1	1	4	0	BREAKFAST CEREALS	0.16170
PRODUCT	1	1	1	4	1	BREAKFAST CEREALS	0.16170
SUBCLASS	1	1	1	5	0	PASTA	0.25987
PRODUCT	1	1	1	5	1	PASTA	0.25987
SUBCLASS	1	1	1	6	0	SNACKS	0.14982
PRODUCT	1	1	1	6	1	SNACKS	0.14982
CLASS	1	1	2	0	0	MEAT	4.95434
SUBCLASS	1	1	2	1	0	FRESH, CHILLED, AND FROZEN MEAT	3.73100
PRODUCT	1	1	2	1	1	BEEF	2.13465
PRODUCT	1	1	2	1	2	CHICKEN POULTRY	1.03030
PRODUCT	1	1	2	1	3	PORK	0.50492
PRODUCT	1	1	2	1	4	TURKEY POULTRY	0.06113
SUBCLASS	1	1	2	2	0	PROCESSED MEAT	1.22334
PRODUCT	1	1	2	2	1	CURED MEAT	1.07909
PRODUCT	1	1	2	2	2	BURGERS	0.10511
PRODUCT	1	1	2	2	3	BREADED MEAT	0.03914
CLASS	1	1	3	0	0	FISH AND SHELLFISH	0.75001
SUBCLASS	1	1	3	1	0	FRESH AND CHILLED FISH	0.36037
PRODUCT	1	1	3	1	1	FRESH AND CHILLED FISH	0.36037
SUBCLASS	1	1	3	2	0	CANNED FISH	0.25749
PRODUCT	1	1	3	2	1	CANNED FISH	0.25749
SUBCLASS	1	1	3	3	0	FRESH AND CHILLED SHELLFISH	0.10311
PRODUCT	1	1	3	3	1	FRESH AND CHILLED SHELLFISH	0.10311
SUBCLASS	1	1	3	4	0	CANNED SHELLFISH	0.02904
PRODUCT	1	1	3	4	1	CANNED SHELLFISH	0.02904
CLASS	1	1	4	0	0	DAIRY, VEGETABLE BEVERAGES, AND EGGS	2.66268
SUBCLASS	1	1	4	1	0	LIQUID MILK	0.36921
PRODUCT	1	1	4	1	1	LIQUID MILK	0.36921
SUBCLASS	1	1	4	2	0	OTHER MILK AND CREAM	0.24122
PRODUCT	1	1	4	2	1	POWDERED MILK	0.13892
PRODUCT	1	1	4	2	2	PRESERVED CREAM AND MILK	0.10230
SUBCLASS	1	1	4	3	0	VEGETABLE BEVERAGES	0.02403
PRODUCT	1	1	4	3	1	VEGETABLE BEVERAGES	0.02403
SUBCLASS	1	1	4	4	0	CHEESE	0.99125
PRODUCT	1	1	4	4	1	CHEESE	0.99125
SUBCLASS	1	1	4	5	0	YOGURT AND SIMILAR PRODUCTS	0.33643
PRODUCT	1	1	4	5	1	YOGURT AND SIMILAR PRODUCTS	0.33643
SUBCLASS	1	1	4	6	0	MILK-BASED DESSERTS	0.22855
PRODUCT	1	1	4	6	1	MILK-BASED DESSERTS	0.22855
SUBCLASS	1	1	4	7	0	EGGS	0.47199
PRODUCT	1	1	4	7	1	EGGS	0.47199

STRUCTURE	D	G	C	SC	P	DESCRIPTION CPI 2023	WEIGHT 2023=100
CLASS	1	1	5	0	0	OILS AND FATS	0.66354
SUBCLASS	1	1	5	1	0	VEGETABLE OILS	0.38381
PRODUCT	1	1	5	1	1	VEGETABLE AND SUNFLOWER OIL	0.31637
PRODUCT	1	1	5	1	2	OLIVE OIL	0.06744
SUBCLASS	1	1	5	2	0	BUTTER	0.20964
PRODUCT	1	1	5	2	1	BUTTER	0.20964
SUBCLASS	1	1	5	3	0	MARGARINE	0.07009
PRODUCT	1	1	5	3	1	MARGARINE	0.07009
CLASS	1	1	6	0	0	FRUIT AND NUTS	1.62690
SUBCLASS	1	1	6	1	0	FRESH FRUIT	1.45258
PRODUCT	1	1	6	1	1	AVOCADOS	0.44206
PRODUCT	1	1	6	1	2	SEASONAL FRUIT	0.39019
PRODUCT	1	1	6	1	3	BANANAS	0.20535
PRODUCT	1	1	6	1	4	LEMONS	0.15015
PRODUCT	1	1	6	1	5	ORANGES	0.12263
PRODUCT	1	1	6	1	6	APPLES	0.11352
PRODUCT	1	1	6	1	7	PEARS	0.02868
SUBCLASS	1	1	6	2	0	NUTS	0.14506
PRODUCT	1	1	6	2	1	NUTS	0.14506
SUBCLASS	1	1	6	3	0	PRESERVED FRUIT	0.02926
PRODUCT	1	1	6	3	1	PRESERVED FRUIT	0.02926
CLASS	1	1	7	0	0	VEGETABLES, PULSES, AND TUBERS	2.39607
SUBCLASS	1	1	7	1	0	VEGETABLES AND PULSES	1.36772
PRODUCT	1	1	7	1	1	SEASONAL VEGETABLES	0.41119
PRODUCT	1	1	7	1	2	TOMATOES	0.33514
PRODUCT	1	1	7	1	3	LETTUCE	0.18525
PRODUCT	1	1	7	1	4	ONIONS AND SCALLIONS	0.14496
PRODUCT	1	1	7	1	5	PUMPKINS	0.09399
PRODUCT	1	1	7	1	6	CARROTS	0.08344
PRODUCT	1	1	7	1	7	BELL PEPPERS	0.07618
PRODUCT	1	1	7	1	8	ZUCCHINI	0.03757
SUBCLASS	1	1	7	2	0	POTATOES	0.38981
PRODUCT	1	1	7	2	1	POTATOES	0.38981
SUBCLASS	1	1	7	3	0	DRIED PULSES	0.12616
PRODUCT	1	1	7	3	1	DRIED PULSES	0.12616
SUBCLASS	1	1	7	4	0	FROZEN VEGETABLES	0.12297
PRODUCT	1	1	7	4	1	FROZEN VEGETABLES	0.12297
SUBCLASS	1	1	7	5	0	OTHER VEGETABLE PREPARATIONS	0.38941
PRODUCT	1	1	7	5	1	FRIED POTATO SNACKS	0.15577
PRODUCT	1	1	7	5	2	PICKLED VEGETABLES	0.07432
PRODUCT	1	1	7	5	3	FROZEN AND DEHYDRATED POTATOES	0.07302
PRODUCT	1	1	7	5	4	CANNED VEGETABLES	0.05416
PRODUCT	1	1	7	5	5	PLANT-BASED MEAT SUBSTITUTES	0.03214
CLASS	1	1	8	0	0	SUGAR, CONFECTIONERY, AND DESSERTS	1.09010
SUBCLASS	1	1	8	1	0	SUGAR	0.12692
PRODUCT	1	1	8	1	1	SUGAR	0.12692
SUBCLASS	1	1	8	2	0	SWEETENERS	0.05791
PRODUCT	1	1	8	2	1	SWEETENERS	0.05791
SUBCLASS	1	1	8	3	0	JELLIES, JAMS, AND NON-DAIRY DESSERTS	0.15275
PRODUCT	1	1	8	3	1	JELLIES AND JAMS	0.09165
PRODUCT	1	1	8	3	2	NON-DAIRY DESSERTS	0.06110
SUBCLASS	1	1	8	4	0	CHOCOLATE	0.35149
PRODUCT	1	1	8	4	1	CHOCOLATE	0.35149
SUBCLASS	1	1	8	5	0	ICE CREAM	0.25666
PRODUCT	1	1	8	5	1	ICE CREAM	0.25666
SUBCLASS	1	1	8	6	0	CANDY AND CHEWING GUM	0.14437

STRUCTURE	D	G	C	SC	P	DESCRIPTION CPI 2023	WEIGHT 2023=100
PRODUCT	1	1	8	6	1	CANDY AND CHEWING GUM	0.14437
CLASS	1	1	9	0	0	MISCELLANEOUS FOOD PRODUCTS	1.47489
SUBCLASS	1	1	9	1	0	READY-MADE FOOD PURCHASED IN STORES AND SUPERMARKETS	0.66987
PRODUCT	1	1	9	1	1	READY-MADE FOOD PURCHASED IN STORES AND SUPERMARKETS	0.66987
SUBCLASS	1	1	9	2	0	BABY FOOD	0.07593
PRODUCT	1	1	9	2	1	BABY FOOD	0.07593
SUBCLASS	1	1	9	3	0	DRESSINGS, TOMATO SAUCES, AND SALT	0.37833
PRODUCT	1	1	9	3	1	DRESSINGS	0.24924
PRODUCT	1	1	9	3	2	TOMATO SAUCES	0.10460
PRODUCT	1	1	9	3	3	SALT	0.02449
SUBCLASS	1	1	9	4	0	SEASONINGS	0.10145
PRODUCT	1	1	9	4	1	SEASONINGS	0.10145
SUBCLASS	1	1	9	5	0	OTHER FOOD PRODUCTS	0.24931
PRODUCT	1	1	9	5	1	NUTRITIONAL SUPPLEMENTS	0.12902
PRODUCT	1	1	9	5	2	SOUPS	0.07266
PRODUCT	1	1	9	5	3	MANJAR (SWEETENED MILK SPREAD) AND SWEET SPREADS	0.04763
GROUP	1	2	0	0	0	NON-ALCOHOLIC BEVERAGES	2.24078
CLASS	1	2	1	0	0	JUICES	0.37959
SUBCLASS	1	2	1	1	0	JUICES	0.37959
PRODUCT	1	2	1	1	1	LIQUID JUICES	0.31511
PRODUCT	1	2	1	1	2	JUICE POWDER	0.06448
CLASS	1	2	2	0	0	COFFEE AND COFFEE SUBSTITUTES	0.21962
SUBCLASS	1	2	2	1	0	COFFEE AND COFFEE SUBSTITUTES	0.21962
PRODUCT	1	2	2	1	1	COFFEE AND COFFEE SUBSTITUTES	0.21962
CLASS	1	2	3	0	0	TEA	0.18816
SUBCLASS	1	2	3	1	0	TEA	0.18816
PRODUCT	1	2	3	1	1	TEA	0.18816
CLASS	1	2	4	0	0	BOTTLED WATER	0.29368
SUBCLASS	1	2	4	1	0	BOTTLED WATER	0.29368
PRODUCT	1	2	4	1	1	BOTTLED WATER	0.29368
CLASS	1	2	5	0	0	SOFT DRINKS	0.96972
SUBCLASS	1	2	5	1	0	SOFT DRINKS	0.96972
PRODUCT	1	2	5	1	1	SOFT DRINKS	0.96972
CLASS	1	2	6	0	0	OTHER NON-ALCOHOLIC BEVERAGES	0.19001
SUBCLASS	1	2	6	1	0	OTHER NON-ALCOHOLIC BEVERAGES	0.19001
PRODUCT	1	2	6	1	2	OTHER NON-ALCOHOLIC BEVERAGES	0.19001
DIVISION	2	0	0	0	0	ALCOHOLIC BEVERAGES AND TOBACCO	3.68125
GROUP	2	1	0	0	0	ALCOHOLIC BEVERAGES	2.58728
CLASS	2	1	1	0	0	SPIRITS AND LIQUORS	0.44210
SUBCLASS	2	1	1	1	0	SPIRITS AND LIQUORS	0.44210
PRODUCT	2	1	1	1	1	OTHER SPIRITS AND LIQUORS	0.28439
PRODUCT	2	1	1	1	2	PISCO	0.15771
CLASS	2	1	2	0	0	WINE	0.87882
SUBCLASS	2	1	2	1	0	WINE	0.87882
PRODUCT	2	1	2	1	1	WINE	0.87882
CLASS	2	1	3	0	0	BEER	1.16859
SUBCLASS	2	1	3	1	0	BEER	1.16859
PRODUCT	2	1	3	1	1	BEER	1.16859
CLASS	2	1	4	0	0	COCKTAILS AND LIQUEURS	0.09777
SUBCLASS	2	1	4	1	0	COCKTAILS AND LIQUEURS	0.09777
PRODUCT	2	1	4	1	1	COCKTAILS AND LIQUEURS	0.09777
GROUP	2	2	0	0	0	CIGARETTES	1.09397
CLASS	2	2	1	0	0	CIGARETTES	1.09397
SUBCLASS	2	2	1	1	0	CIGARETTES	1.09397
PRODUCT	2	2	1	1	1	CIGARETTES	1.09397
DIVISION	3	0	0	0	0	CLOTHING AND FOOTWEAR	2.90040

STRUCTURE	D	G	C	SC	P	DESCRIPTION CPI 2023	WEIGHT 2023=100
GROUP	3	1	0	0	0	CLOTHING	1.88944
CLASS	3	1	1	0	0	CLOTHING	1.75721
SUBCLASS	3	1	1	1	0	CLOTHING FOR MEN	0.65295
PRODUCT	3	1	1	1	1	TROUSERS FOR MEN	0.23362
PRODUCT	3	1	1	1	2	SHIRTS AND T-SHIRTS FOR MEN	0.20592
PRODUCT	3	1	1	1	3	COATS FOR MEN	0.16660
PRODUCT	3	1	1	1	4	UNDERWEAR AND SLEEPWEAR FOR MEN	0.04681
SUBCLASS	3	1	1	2	0	CLOTHING FOR WOMEN	0.63683
PRODUCT	3	1	1	2	1	TROUSERS, SKIRTS, AND DRESSES FOR WOMEN	0.25794
PRODUCT	3	1	1	2	2	COATS FOR WOMEN	0.16703
PRODUCT	3	1	1	2	3	BLOUSES AND T-SHIRTS FOR WOMEN	0.12927
PRODUCT	3	1	1	2	4	UNDERWEAR, SWIMWEAR, AND SLEEPWEAR FOR WOMEN	0.08259
SUBCLASS	3	1	1	3	0	CLOTHING FOR CHILDREN	0.26390
PRODUCT	3	1	1	3	1	TROUSERS, SKIRTS, AND DRESSES FOR CHILDREN	0.09686
PRODUCT	3	1	1	3	2	T-SHIRTS FOR CHILDREN	0.06844
PRODUCT	3	1	1	3	3	COATS FOR CHILDREN	0.06459
PRODUCT	3	1	1	3	4	UNDERWEAR, SWIMWEAR, AND SLEEPWEAR FOR CHILDREN	0.03401
SUBCLASS	3	1	1	4	0	CLOTHING FOR INFANTS	0.02419
PRODUCT	3	1	1	4	1	CLOTHING FOR INFANTS	0.02419
SUBCLASS	3	1	1	5	0	SCHOOL CLOTHING	0.17934
PRODUCT	3	1	1	5	1	SCHOOL CLOTHING	0.17934
CLASS	3	1	2	0	0	CLOTHING ACCESSORIES	0.10312
SUBCLASS	3	1	2	1	0	CLOTHING ACCESSORIES	0.10312
PRODUCT	3	1	2	1	1	CLOTHING ACCESSORIES	0.10312
CLASS	3	1	3	0	0	CLEANING AND REPAIR OF CLOTHING	0.02911
SUBCLASS	3	1	3	1	0	CLEANING AND REPAIR OF CLOTHING	0.02911
PRODUCT	3	1	3	1	1	CLEANING AND REPAIR OF CLOTHING	0.02911
GROUP	3	2	0	0	0	FOOTWEAR	1.01096
CLASS	3	2	1	0	0	FOOTWEAR	1.01096
SUBCLASS	3	2	1	1	0	FOOTWEAR FOR MEN	0.38681
PRODUCT	3	2	1	1	1	SPORTS FOOTWEAR FOR MEN	0.27643
PRODUCT	3	2	1	1	2	SHOES FOR MEN	0.11038
SUBCLASS	3	2	1	2	0	FOOTWEAR FOR WOMEN	0.38362
PRODUCT	3	2	1	2	1	SPORTS FOOTWEAR FOR WOMEN	0.19985
PRODUCT	3	2	1	2	2	SEASONAL FOOTWEAR FOR WOMEN	0.09881
PRODUCT	3	2	1	2	3	SHOES FOR WOMEN	0.08496
SUBCLASS	3	2	1	3	0	FOOTWEAR FOR CHILDERN	0.24053
PRODUCT	3	2	1	3	1	SPORTS FOOTWEAR FOR CHILDREN	0.19016
PRODUCT	3	2	1	3	2	SEASONAL FOOTWEAR FOR CHILDREN	0.05037
DIVISION	**4**	**0**	**0**	**0**	**0**	**HOUSING AND BASIC SERVICES**	**16.76332**
GROUP	4	1	0	0	0	RENTALS	7.20402
CLASS	4	1	1	0	0	RENTALS	7.20402
SUBCLASS	4	1	1	1	0	RENTALS	7.20402
PRODUCT	4	1	1	1	1	RENTALS	7.20402
GROUP	4	2	0	0	0	MAINTENANCE AND REPAIR OF THE DWELLING	1.88936
CLASS	4	2	1	0	0	MATERIALS FOR THE MAINTENANCE OF THE DWELLING	0.78449
SUBCLASS	4	2	1	1	0	MATERIALS FOR THE MAINTENANCE OF THE DWELLING	0.78449
PRODUCT	4	2	1	1	1	MATERIALS FOR THE REPAIR OF THE DWELLING	0.44338
PRODUCT	4	2	1	1	2	PAINTS AND VARNISHES	0.15045
PRODUCT	4	2	1	1	3	PLUMBING ITEMS	0.09858
PRODUCT	4	2	1	1	4	SEALANTS AND ADHESIVES	0.09208
CLASS	4	2	2	0	0	SERVICES FOR THE MAINTENANCE OF THE DWELLING	1.10487
SUBCLASS	4	2	2	1	0	SERVICES FOR THE MAINTENANCE OF THE DWELLING	1.10487
PRODUCT	4	2	2	1	1	SERVICES FOR THE MAINTENANCE OF THE DWELLING	1.03569
PRODUCT	4	2	2	1	2	HOME SECURITY ALARMS	0.06918
GROUP	4	3	0	0	0	WATER SUPPLY AND SERVICES RELATING TO THE DWELLING	2.96012

STRUCTURE	D	G	C	SC	P	DESCRIPTION CPI 2023	WEIGHT 2023=100
CLASS	4	3	1	0	0	WATER SUPPLY	1.49340
SUBCLASS	4	3	1	1	0	WATER SUPPLY	1.49340
PRODUCT	4	3	1	1	1	WATER SUPPLY	1.49340
CLASS	4	3	2	0	0	REFUSE COLLECTION SERVICE	0.11045
SUBCLASS	4	3	2	1	0	REFUSE COLLECTION SERVICE	0.11045
PRODUCT	4	3	2	1	1	REFUSE COLLECTION SERVICE	0.11045
CLASS	4	3	3	0	0	CO-PROPRIETOR EXPENSES	1.35627
SUBCLASS	4	3	3	1	0	CO-PROPRIETOR EXPENSES	1.35627
PRODUCT	4	3	3	1	1	CO-PROPRIETOR EXPENSES	1.35627
GROUP	4	4	0	0	0	ELECTRICITY, GAS, AND OTHER FUELS	4.70982
CLASS	4	4	1	0	0	ELECTRICITY	2.20959
SUBCLASS	4	4	1	1	0	ELECTRICITY	2.20959
PRODUCT	4	4	1	1	1	ELECTRICITY	2.20959
CLASS	4	4	2	0	0	GAS	1.99329
SUBCLASS	4	4	2	1	0	NETWORK GAS	0.61726
PRODUCT	4	4	2	1	1	NETWORK GAS	0.61726
SUBCLASS	4	4	2	2	0	LIQUEFIED GAS	1.37603
PRODUCT	4	4	2	2	1	LIQUEFIED GAS	1.37603
CLASS	4	4	3	0	0	KEROSENE	0.19404
SUBCLASS	4	4	3	1	0	KEROSENE	0.19404
PRODUCT	4	4	3	1	1	KEROSENE	0.19404
CLASS	4	4	4	0	0	OTHER FUELS FOR DOMESTIC USE	0.31290
SUBCLASS	4	4	4	1	0	OTHER FUELS FOR DOMESTIC USE	0.31290
PRODUCT	4	4	4	1	1	OTHER FUELS FOR DOMESTIC USE	0.31290
DIVISION	5	0	0	0	0	HOUSEHOLD EQUIPMENT AND MAINTENANCE	6.18583
GROUP	5	1	0	0	0	FURNITURE AND FURNISHINGS FOR THE HOUSEHOLD	1.09351
CLASS	5	1	1	0	0	FURNITURE AND FURNISHINGS FOR THE HOUSEHOLD	1.07218
SUBCLASS	5	1	1	1	0	HOUSEHOLD FURNITURE	0.95227
PRODUCT	5	1	1	1	1	BEDS	0.29902
PRODUCT	5	1	1	1	2	LIVING ROOM FURNITURE	0.29349
PRODUCT	5	1	1	1	3	KITCHEN FURNITURE	0.13524
PRODUCT	5	1	1	1	4	DINING ROOM FURNITURE	0.11506
PRODUCT	5	1	1	1	5	MATTRESSES	0.07208
PRODUCT	5	1	1	1	6	OFFICE FURNITURE	0.03738
SUBCLASS	5	1	1	2	0	GARDEN AND CAMPING FURNITURE	0.02552
PRODUCT	5	1	1	2	1	GARDEN AND CAMPING FURNITURE	0.02552
SUBCLASS	5	1	1	3	0	FURNISHINGS	0.09439
PRODUCT	5	1	1	3	1	FURNISHINGS	0.09439
CLASS	5	1	2	0	0	FURNITURE REPAIR	0.02133
SUBCLASS	5	1	2	1	0	FURNITURE REPAIR	0.02133
PRODUCT	5	1	2	1	1	FURNITURE REPAIR	0.02133
GROUP	5	2	0	0	0	HOUSEHOLD TEXTILES	0.28002
CLASS	5	2	1	0	0	HOUSEHOLD TEXTILES	0.28002
SUBCLASS	5	2	1	1	0	LIVING ROOM AND DINING ROOM LINEN	0.05311
PRODUCT	5	2	1	1	1	LIVING ROOM AND DINING ROOM LINEN	0.05311
SUBCLASS	5	2	1	2	0	BED LINEN AND BEDDING	0.14606
PRODUCT	5	2	1	2	1	BED LINEN AND BEDDING	0.14606
SUBCLASS	5	2	1	3	0	BATHROOM AND KITCHEN LINEN	0.08085
PRODUCT	5	2	1	3	1	BATHROOM AND KITCHEN LINEN	0.08085
GROUP	5	3	0	0	0	HOUSEHOLD APPLIANCES	1.25024
CLASS	5	3	1	0	0	MAJOR HOUSEHOLD APPLIANCES, WHETHER ELECTRIC OR NOT	0.89939
SUBCLASS	5	3	1	1	0	HOUSEHOLD APPLIANCES	0.48005
PRODUCT	5	3	1	1	1	REFRIGERATORS	0.30881
PRODUCT	5	3	1	1	2	STOVES	0.09000
PRODUCT	5	3	1	1	3	ELECTRIC AND MICROWAVE OVENS	0.08124
SUBCLASS	5	3	1	2	0	WASHING MACHINES	0.22099

STRUCTURE	D	G	C	SC	P	DESCRIPTION CPI 2023	WEIGHT 2023=100
PRODUCT	5	3	1	2	1	WASHING MACHINES	0.22099
SUBCLASS	5	3	1	3	0	HOUSEHOLD HEATING APPLIANCES AND WATER HEATERS	0.13026
PRODUCT	5	3	1	3	1	HOUSEHOLD HEATING APPLIANCES	0.08928
PRODUCT	5	3	1	3	2	WATER HEATERS	0.04098
SUBCLASS	5	3	1	4	0	VACUUM CLEANERS	0.03154
PRODUCT	5	3	1	4	1	VACUUM CLEANERS	0.03154
SUBCLASS	5	3	1	5	0	OTHER MAJOR HOUSEHOLD APPLIANCES	0.03655
PRODUCT	5	3	1	5	1	OTHER MAJOR HOUSEHOLD APPLIANCES	0.03655
CLASS	5	3	2	0	0	SMALL KITCHEN APPLIANCES	0.29236
SUBCLASS	5	3	2	1	0	SMALL KITCHEN APPLIANCES	0.29236
PRODUCT	5	3	2	1	1	SMALL KITCHEN APPLIANCES	0.29236
CLASS	5	3	3	0	0	REPAIR OF HOUSEHOLD APPLIANCES	0.05849
SUBCLASS	5	3	3	1	0	REPAIR OF HOUSEHOLD APPLIANCES	0.05849
PRODUCT	5	3	3	1	1	REPAIR OF HOUSEHOLD APPLIANCES	0.05849
GROUP	5	4	0	0	0	GLASSWARE, TABLEWARE, AND HOUSEHOLD UTENSILS	0.28177
CLASS	5	4	1	0	0	GLASSWARE, TABLEWARE, AND HOUSEHOLD UTENSILS	0.28177
SUBCLASS	5	4	1	1	0	TABLEWARE	0.09582
PRODUCT	5	4	1	1	1	TABLEWARE	0.09582
SUBCLASS	5	4	1	2	0	KITCHEN UTENSILS	0.18595
PRODUCT	5	4	1	2	1	KITCHEN UTENSILS	0.18595
GROUP	5	5	0	0	0	TOOLS AND EQUIPMENT FOR HOUSE AND GARDEN	0.18310
CLASS	5	5	1	0	0	ELECTRIC TOOLS AND ACCESSORIES	0.07550
SUBCLASS	5	5	1	1	0	ELECTRIC TOOLS AND ACCESSORIES	0.07550
PRODUCT	5	5	1	1	1	ELECTRIC TOOLS AND ACCESSORIES	0.07550
CLASS	5	5	2	0	0	HAND TOOLS AND ACCESSORIES	0.10760
SUBCLASS	5	5	2	1	0	HAND TOOLS AND ACCESSORIES	0.03201
PRODUCT	5	5	2	1	1	HAND TOOLS AND ACCESSORIES	0.03201
SUBCLASS	5	5	2	2	0	SMALL ELECTRIC ACCESSORIES	0.07559
PRODUCT	5	5	2	2	1	SMALL ELECTRIC ACCESSORIES	0.07559
GROUP	5	6	0	0	0	GOODS AND SERVICES FOR HOUSEHOLD MAINTENANCE	3.09719
CLASS	5	6	1	0	0	NON-DURABLE HOUSEHOLD GOODS	1.35931
SUBCLASS	5	6	1	1	0	HOUSEHOLD CLEANING PRODUCTS	0.82287
PRODUCT	5	6	1	1	1	LAUNDRY DETERGENT AND SOFTENERS	0.40363
PRODUCT	5	6	1	1	2	DISINFECTANTS	0.14487
PRODUCT	5	6	1	1	3	CLEANING SUPPLIES	0.10267
PRODUCT	5	6	1	1	4	MULTIPURPOSE CLEANERS	0.10071
PRODUCT	5	6	1	1	5	DISHWASHING DETERGENT	0.07099
SUBCLASS	5	6	1	2	0	OTHER NON-DURABLE HOUSEHOLD GOODS	0.53644
PRODUCT	5	6	1	2	1	TABLE NAPKINS AND PAPER TOWELS	0.22898
PRODUCT	5	6	1	2	2	PLASTIC BAGS	0.12097
PRODUCT	5	6	1	2	3	AIR FRESHENERS	0.09572
PRODUCT	5	6	1	2	4	NAILS AND SCREWS	0.04802
PRODUCT	5	6	1	2	5	INSECTICIDES	0.04275
CLASS	5	6	2	0	0	DOMESTIC SERVICE	1.73788
SUBCLASS	5	6	2	1	0	DOMESTIC SERVICE	1.73788
PRODUCT	5	6	2	1	1	DOMESTIC SERVICE	1.73788
DIVISION	**6**	**0**	**0**	**0**	**0**	**HEALTH**	**8.21206**
GROUP	6	1	0	0	0	MEDICINES AND HEALTH PRODUCTS	3.17403
CLASS	6	1	1	0	0	MEDICINES	2.45055
SUBCLASS	6	1	1	1	0	MEDICINES	2.39372
PRODUCT	6	1	1	1	1	MEDICINES FOR THE DIGESTIVE TRACT AND METABOLISM	0.58323
PRODUCT	6	1	1	1	2	MEDICINES FOR THE CENTRAL NERVOUS SYSTEM	0.48344
PRODUCT	6	1	1	1	3	MEDICINES FOR THE GENITO-URINARY SYSTEM AND HORMONES	0.30867
PRODUCT	6	1	1	1	4	MEDICINES FOR THE RESPIRATORY SYSTEM	0.25577
PRODUCT	6	1	1	1	5	CARDIOVASCULAR MEDICINES	0.21695
PRODUCT	6	1	1	1	6	NSAIDS AND ANTIMIGRAINE AND OSTEOMUSCULAR MEDICINES	0.18186

STRUCTURE	D	G	C	SC	P	DESCRIPTION CPI 2023	WEIGHT 2023=100
PRODUCT	6	1	1	1	7	DERMATOLOGICAL MEDICINES, DISNFECTANTS, AND ANTISEPTICS	0.13556
PRODUCT	6	1	1	1	8	ANTI-INFECTIOUS, ANTIVIRAL AND ANTIFUNGAL MEDICINES	0.08144
PRODUCT	6	1	1	1	9	OPHTHALMOLOGICAL PREPARATIONS	0.07753
PRODUCT	6	1	1	1	10	CANCER MEDICINES, IMMUNOMODIFIERS, AND MEDICINES USED IN PALLIATIVE CARE	0.06927
SUBCLASS	6	1	1	2	0	HOMEOPATHIC PRODUCTS	0.05683
PRODUCT	6	1	1	2	1	HOMEOPATHIC PRODUCTS	0.05683
CLASS	6	1	2	0	0	MEDICAL PRODUCTS	0.17225
SUBCLASS	6	1	2	1	0	MEDICAL PRODUCTS	0.17225
PRODUCT	6	1	2	1	1	PLASTERS, DRESSINGS, AND BANDAGES	0.08445
PRODUCT	6	1	2	1	2	MEDICAL DIAGNOSTIC PRODUCTS	0.07601
PRODUCT	6	1	2	1	3	CONDOMS	0.01179
CLASS	6	1	3	0	0	ASSISTIVE DEVICES	0.55123
SUBCLASS	6	1	3	1	0	EYEGLASSES	0.42954
PRODUCT	6	1	3	1	1	EYEGLASSES	0.42954
SUBCLASS	6	1	3	2	0	ASSISTIVE DEVICES FOR HEARING AND COMMUNICATION	0.04504
PRODUCT	6	1	3	2	1	ASSISTIVE DEVICES FOR HEARING AND COMMUNICATION	0.04504
SUBCLASS	6	1	3	3	0	ORTHOPEDIC ITEMS	0.07665
PRODUCT	6	1	3	3	1	ORTHOPEDIC ITEMS	0.07665
GROUP	6	2	0	0	0	OUTPATIENT SERVICES	3.53090
CLASS	6	2	1	0	0	DENTAL SERVICES	1.55736
SUBCLASS	6	2	1	1	0	DENTAL SERVICES	1.55736
PRODUCT	6	2	1	1	1	DENTAL SERVICES	1.55736
CLASS	6	2	2	0	0	MEDICAL SERVICES	1.97354
SUBCLASS	6	2	2	1	0	MEDICAL SERVICES	1.97354
PRODUCT	6	2	2	1	1	MEDICAL APPOINTMENTS	1.10947
PRODUCT	6	2	2	1	2	OUTPATIENT PROCEDURES AND SURGERIES	0.86407
GROUP	6	3	0	0	0	INPATIENT CARE SERVICES	0.84140
CLASS	6	3	1	0	0	INPATIENT CARE SERVICES	0.84140
SUBCLASS	6	3	1	1	0	INPATIENT CARE SERVICES	0.84140
PRODUCT	6	3	1	1	1	INPATIENT CARE SERVICES	0.84140
GROUP	6	4	0	0	0	DIAGNOSTIC IMAGING SERVICES AND MEDICAL LABORATORY SERVICES	0.66573
CLASS	6	4	1	0	0	DIAGNOSTIC IMAGING SERVICES AND MEDICAL LABORATORY SERVICES	0.66573
SUBCLASS	6	4	1	1	0	IMAGING AND RADIOLOGY TESTS	0.36317
PRODUCT	6	4	1	1	1	IMAGING AND RADIOLOGY TESTS	0.36317
SUBCLASS	6	4	1	2	0	CLINICAL LABORATORY TESTS	0.30256
PRODUCT	6	4	1	2	1	CLINICAL LABORATORY TESTS	0.30256
DIVISION	**7**	**0**	**0**	**0**	**0**	**TRANSPORT**	**13.45108**
GROUP	7	1	0	0	0	PURCHASE OF VEHICLES	3.97690
CLASS	7	1	1	0	0	MOTORCARS	3.85913
SUBCLASS	7	1	1	1	0	NEW MOTORCARS	3.63561
PRODUCT	7	1	1	1	1	NEW MOTORCARS	3.63561
SUBCLASS	7	1	1	2	0	SECONDHAND MOTORCARS	0.22352
PRODUCT	7	1	1	2	1	SECONDHAND MOTORCARS	0.22352
CLASS	7	1	2	0	0	MOTORCYCLES	0.08329
SUBCLASS	7	1	2	1	0	MOTORCYCLES	0.08329
PRODUCT	7	1	2	1	1	MOTORCYCLES	0.08329
CLASS	7	1	3	0	0	BICYCLES	0.03448
SUBCLASS	7	1	3	1	0	BICYCLES	0.03448
PRODUCT	7	1	3	1	1	BICYCLES	0.03448
GROUP	7	2	0	0	0	OPERATION OF PERSONAL TRANSPORT EQUIPMENT	6.45020
CLASS	7	2	1	0	0	PARTS AND ACCESSORIES FOR PERSONAL TRANSPORT VEHICLES	0.45550
SUBCLASS	7	2	1	1	0	TIRES	0.10851
PRODUCT	7	2	1	1	1	TIRES	0.10851
SUBCLASS	7	2	1	2	0	PARTS FOR MOTORCARS	0.27028
PRODUCT	7	2	1	2	1	MECHANICAL PARTS FOR MOTORCARS	0.20463

STRUCTURE	D	G	C	SC	P	DESCRIPTION CPI 2023	WEIGHT 2023=100
PRODUCT	7	2	1	2	2	ELECTRICAL PARTS FOR MOTORCARS	0.06565
SUBCLASS	7	2	1	3	0	ACCESORIES FOR PERSONAL VEHICLES	0.07671
PRODUCT	7	2	1	3	1	ACCESORIES FOR PERSONAL VEHICLES	0.07671
CLASS	7	2	2	0	0	FUELS FOR PERSONAL VEHICLES	3.88504
SUBCLASS	7	2	2	1	0	DIESEL FUEL	0.49502
PRODUCT	7	2	2	1	1	DIESEL FUEL	0.49502
SUBCLASS	7	2	2	2	0	GASOLINE	3.39002
PRODUCT	7	2	2	2	1	GASOLINE	3.39002
CLASS	7	2	3	0	0	MAINTENANCE AND REPAIR OF PERSONAL VEHICLES	1.07699
SUBCLASS	7	2	3	1	0	MAINTENANCE AND REPAIR OF PERSONAL VEHICLES	1.07699
PRODUCT	7	2	3	1	1	MAINTENANCE AND REPAIR OF PERSONAL VEHICLES	1.03862
PRODUCT	7	2	3	1	2	CAR WASH SERVICE	0.03837
CLASS	7	2	4	0	0	OTHER SERVICES RELATED TO PERSONAL VEHICLES	1.03267
SUBCLASS	7	2	4	1	0	PARKING SERVICES	0.21180
PRODUCT	7	2	4	1	1	PARKING SERVICES	0.21180
SUBCLASS	7	2	4	2	0	TOLL SERVICES	0.74954
PRODUCT	7	2	4	2	1	TOLL SERVICES	0.74954
SUBCLASS	7	2	4	3	0	SERVICES RELATED TO THE CIRCULATION OF VEHICLES	0.07133
PRODUCT	7	2	4	3	1	ROADWORTHINESS TESTS	0.05231
PRODUCT	7	2	4	3	2	DRIVER'S LICENSES	0.01902
GROUP	7	3	0	0	0	PASSENGER TRANSPORT	2.99686
CLASS	7	3	1	0	0	PASSENGER TRANSPORT BY ROAD	1.43655
SUBCLASS	7	3	1	1	0	COLLECTIVE PASSENGER TRANSPORT	0.81747
PRODUCT	7	3	1	1	1	URBAN BUS TRANSPORT	0.28767
PRODUCT	7	3	1	1	2	INTERURBAN BUS TRANSPORT	0.27451
PRODUCT	7	3	1	1	3	SHARED TAXI TRANSPORT	0.25529
SUBCLASS	7	3	1	2	0	PRIVATE TRANSPORT OF PASSENGERS	0.43574
PRODUCT	7	3	1	2	1	PRIVATE TRANSPORT OF PASSENGERS	0.43574
SUBCLASS	7	3	1	3	0	SCHOOL TRANSPORT	0.18334
PRODUCT	7	3	1	3	1	SCHOOL TRANSPORT	0.18334
CLASS	7	3	2	0	0	PASSENGER TRANSPORT BY AIR	0.84581
SUBCLASS	7	3	2	1	0	DOMESTIC AIR TRANSPORT	0.19934
PRODUCT	7	3	2	1	1	DOMESTIC AIR TRANSPORT	0.19934
SUBCLASS	7	3	2	2	0	INTERNATIONAL AIR TRANSPORT	0.64647
PRODUCT	7	3	2	2	1	INTERNATIONAL AIR TRANSPORT	0.64647
CLASS	7	3	3	0	0	COMBINED PASSENGER TRANSPORT	0.71450
SUBCLASS	7	3	3	1	0	COMBINED PASSENGER TRANSPORT	0.71450
PRODUCT	7	3	3	1	1	COMBINED PASSENGER TRANSPORT	0.71450
GROUP	7	4	0	0	0	DELIVERY OF GOODS AND PARCELS	0.02712
CLASS	7	4	1	0	0	DELIVERY OF GOODS AND PARCELS	0.02712
SUBCLASS	7	4	1	1	0	DELIVERY OF GOODS AND PARCELS	0.02712
PRODUCT	7	4	1	1	1	DELIVERY OF GOODS AND PARCELS	0.02712
DIVISION	**8**	**0**	**0**	**0**	**0**	**INFORMATION AND COMMUNICATION**	**6.64634**
GROUP	8	1	0	0	0	INFORMATION AND COMMUNICATION EQUIPMENT AND ACCESSORIES	2.13003
CLASS	8	1	1	0	0	MOBILE TELEPHONE EQUIPMENT	1.01200
SUBCLASS	8	1	1	1	0	MOBILE TELEPHONE EQUIPMENT	1.01200
PRODUCT	8	1	1	1	1	MOBILE TELEPHONE EQUIPMENT	1.01200
CLASS	8	1	2	0	0	COMPUTERS	0.62115
SUBCLASS	8	1	2	1	0	COMPUTERS	0.62115
PRODUCT	8	1	2	1	1	COMPUTERS	0.62115
CLASS	8	1	3	0	0	AUDIOVISUAL EQUIPMENT	0.41852
SUBCLASS	8	1	3	1	0	AUDIOVISUAL EQUIPMENT	0.41852
PRODUCT	8	1	3	1	1	TELEVISION SETS	0.36974
PRODUCT	8	1	3	1	2	HEADPHONES AND SPEAKERS	0.04878
CLASS	8	1	4	0	0	TECHNOLOGICAL DEVICES AND ACCESSORIES	0.07836
SUBCLASS	8	1	4	1	0	TECHNOLOGICAL DEVICES AND ACCESSORIES	0.07836

STRUCTURE	D	G	C	SC	P	DESCRIPTION CPI 2023	WEIGHT 2023=100
PRODUCT	8	1	4	1	1	TECHNOLOGICAL DEVICES AND ACCESSORIES	0.07836
GROUP	8	2	0	0	0	INFORMATION AND COMMUNICATION SERVICES	4.51631
CLASS	8	2	1	0	0	MOBILE TELEPHONE SERVICES	1.89638
SUBCLASS	8	2	1	1	0	MOBILE TELEPHONE SERVICES	1.89638
PRODUCT	8	2	1	1	1	MOBILE TELEPHONE SERVICES	1.89638
CLASS	8	2	2	0	0	INTERNET ACCESS	0.53294
SUBCLASS	8	2	2	1	0	INTERNET ACCESS	0.53294
PRODUCT	8	2	2	1	1	INTERNET ACCESS	0.53294
CLASS	8	2	3	0	0	BUNDLED TELECOMMUNICATION SERVICES	1.35714
SUBCLASS	8	2	3	1	0	BUNDLED TELECOMMUNICATION SERVICES	1.35714
PRODUCT	8	2	3	1	1	BUNDLED TELECOMMUNICATION SERVICES	1.35714
CLASS	8	2	4	0	0	SUBSCRIPTION TO AUDIOVISUAL CONTENT	0.72985
SUBCLASS	8	2	4	1	0	SUBSCRIPTION TO AUDIOVISUAL CONTENT	0.72985
PRODUCT	8	2	4	1	1	SUBSCRIPTION TO AUDIOVISUAL CONTENT	0.72985
DIVISION	**9**	**0**	**0**	**0**	**0**	**RECREATION, SPORTS, AND CULTURE**	**4.75354**
GROUP	9	1	0	0	0	EQUIPMENT FOR GAMES AND RECREATION	0.06251
CLASS	9	1	1	0	0	EQUIPMENT FOR GAMES AND RECREATION	0.06251
SUBCLASS	9	1	1	1	0	EQUIPMENT FOR GAMES AND RECREATION	0.06251
PRODUCT	9	1	1	1	1	EQUIPMENT FOR GAMES AND RECREATION	0.06251
GROUP	9	2	0	0	0	RECREATIONAL GOODS	0.69749
CLASS	9	2	1	0	0	GAMES, TOYS, AND CELEBRATION ARTICLES	0.46747
SUBCLASS	9	2	1	1	0	GAME CONSOLES AND VIDEO GAMES	0.09761
PRODUCT	9	2	1	1	1	GAME CONSOLES	0.04930
PRODUCT	9	2	1	1	2	VIDEO GAMES	0.04831
SUBCLASS	9	2	1	2	0	TOYS	0.28281
PRODUCT	9	2	1	2	1	TOYS	0.28281
SUBCLASS	9	2	1	3	0	CELEBRATION ARTICLES	0.08705
PRODUCT	9	2	1	3	1	CELEBRATION ARTICLES	0.08705
CLASS	9	2	2	0	0	EQUIPMENT FOR SPORTS AND OPEN-AIR RECREATION	0.23002
SUBCLASS	9	2	2	1	0	SPORTS EQUIPMENT	0.18580
PRODUCT	9	2	2	1	1	SPORTS EQUIPMENT	0.18580
SUBCLASS	9	2	2	2	0	ITEMS FOR CAMPING AND RECREATION	0.04422
PRODUCT	9	2	2	2	1	ITEMS FOR CAMPING AND RECREATION	0.04422
GROUP	9	3	0	0	0	PRODUCTS FOR GARDENING AND PETS	1.45545
CLASS	9	3	1	0	0	GARDENING AND FLOWERS	0.16130
SUBCLASS	9	3	1	1	0	GARDENING AND FLOWERS	0.16130
PRODUCT	9	3	1	1	1	GARDEN PLANTS AND PRODUCTS	0.08194
PRODUCT	9	3	1	1	2	FLORAL ARRANGEMENTS	0.07936
CLASS	9	3	2	0	0	PRODUCTS FOR PETS	1.29415
SUBCLASS	9	3	2	1	0	PRODUCTS FOR PETS	1.29415
PRODUCT	9	3	2	1	1	PET FOOD	1.02148
PRODUCT	9	3	2	1	2	ACCESSORIES FOR PETS	0.16058
PRODUCT	9	3	2	1	3	VETERINARY MEDICINES AND PRODUCTS	0.11209
GROUP	9	4	0	0	0	RECREATIONAL SERVICES	1.04780
CLASS	9	4	1	0	0	SERVICES FOR PETS	0.50543
SUBCLASS	9	4	1	1	0	SERVICES FOR PETS	0.50543
PRODUCT	9	4	1	1	1	SERVICES FOR PETS	0.50543
CLASS	9	4	2	0	0	RECREATIONAL AND SPORTING SERVICES	0.50646
SUBCLASS	9	4	2	1	0	SERVICES PROVIDED BY RECREATIONAL CENTERS	0.17783
PRODUCT	9	4	2	1	1	SERVICES PROVIDED BY RECREATIONAL CENTERS	0.17783
SUBCLASS	9	4	2	2	0	SERVICES ASSOCIATED WITH THE PRACTICE OF SPORTS	0.25210
PRODUCT	9	4	2	2	1	SERVICES ASSOCIATED WITH THE PRACTICE OF SPORTS	0.25210
SUBCLASS	9	4	2	3	0	TICKETS FOR SPORTING EVENTS	0.07653
PRODUCT	9	4	2	3	1	TICKETS FOR SPORTING EVENTS	0.07653
CLASS	9	4	3	0	0	GAMES OF CHANCE	0.03591
SUBCLASS	9	4	3	1	0	GAMES OF CHANCE	0.03591

STRUCTURE	D	G	C	SC	P	DESCRIPTION CPI 2023	WEIGHT 2023=100
PRODUCT	9	4	3	1	1	GAMES OF CHANCE	0.03591
GROUP	9	5	0	0	0	MUSICAL INSTRUMENTS	0.12146
CLASS	9	5	1	0	0	MUSICAL INSTRUMENTS	0.12146
SUBCLASS	9	5	1	1	0	MUSICAL INSTRUMENTS	0.12146
PRODUCT	9	5	1	1	1	MUSICAL INSTRUMENTS	0.12146
GROUP	9	6	0	0	0	TICKETS FOR CULTURAL EVENTS	0.33898
CLASS	9	6	1	0	0	TICKETS FOR CULTURAL EVENTS	0.33898
SUBCLASS	9	6	1	1	0	TICKETS FOR CULTURAL EVENTS	0.33898
PRODUCT	9	6	1	1	1	TICKETS FOR CULTURAL EVENTS	0.33898
GROUP	9	7	0	0	0	NEWSPAPERS, BOOKS, AND STATIONERY	0.71708
CLASS	9	7	1	0	0	EDUCATIONAL TEXTS AND BOOKS	0.36597
SUBCLASS	9	7	1	1	0	EDUCATIONAL TEXTS	0.12168
PRODUCT	9	7	1	1	1	EDUCATIONAL TEXTS	0.12168
SUBCLASS	9	7	1	2	0	BOOKS	0.24429
PRODUCT	9	7	1	2	1	BOOKS	0.24429
CLASS	9	7	2	0	0	NEWSPAPERS	0.03039
SUBCLASS	9	7	2	1	0	NEWSPAPERS	0.03039
PRODUCT	9	7	2	1	1	NEWSPAPERS	0.03039
CLASS	9	7	3	0	0	STATIONERY AND HANDICRAFT ITEMS	0.32072
SUBCLASS	9	7	3	1	0	STATIONERY AND HANDICRAFT ITEMS	0.32072
PRODUCT	9	7	3	1	1	STATIONERY AND HANDICRAFT ITEMS	0.32072
GROUP	9	8	0	0	0	PACKAGE HOLIDAYS	0.31277
CLASS	9	8	1	0	0	PACKAGE HOLIDAYS	0.31277
SUBCLASS	9	8	1	1	0	PACKAGE HOLIDAYS	0.31277
PRODUCT	9	8	1	1	1	INTERNATIONAL PACKAGE HOLIDAYS	0.25640
PRODUCT	9	8	1	1	2	DOMESTIC PACKAGE HOLIDAYS	0.05637
DIVISION	10	0	0	0	0	EDUCATION	4.19831
GROUP	10	1	0	0	0	EARLY CHILDHOOD AND PRIMARY EDUCATION	1.44971
CLASS	10	1	1	0	0	EARLY CHILDHOOD AND PRIMARY EDUCATION	1.44971
SUBCLASS	10	1	1	1	0	EARLY CHILDHOOD AND PRIMARY EDUCATION	1.44971
PRODUCT	10	1	1	1	1	SECOND PHASE OF PRIMARY EDUCATION	0.50429
PRODUCT	10	1	1	1	2	FIRST PHASE OF PRIMARY EDUCATION	0.47440
PRODUCT	10	1	1	1	3	EARLY CHILDHOOD EDUCATION	0.47102
GROUP	10	2	0	0	0	SECONDARY EDUCATION	0.58802
CLASS	10	2	1	0	0	SECONDARY EDUCATION	0.58802
SUBCLASS	10	2	1	1	0	SECONDARY EDUCATION	0.58802
PRODUCT	10	2	1	1	1	SECONDARY EDUCATION	0.58802
GROUP	10	3	0	0	0	POST-SECONDARY EDUCATION	1.91635
CLASS	10	3	1	0	0	POST-SECONDARY EDUCATION	1.91635
SUBCLASS	10	3	1	1	0	POST-SECONDARY EDUCATION	1.91635
PRODUCT	10	3	1	1	1	UNIVERSITY EDUCATION	1.32753
PRODUCT	10	3	1	1	2	POSTGRADUATE EDUCATION	0.30416
PRODUCT	10	3	1	1	3	EDUCATION IN PROFESSIONAL INSTITUTES	0.24884
PRODUCT	10	3	1	1	4	EDUCATION IN TECHNICAL CENTERS	0.03582
GROUP	10	4	0	0	0	EDUCATION NOT DEFINED BY LEVEL	0.24423
CLASS	10	4	1	0	0	EDUCATION NOT DEFINED BY LEVEL	0.24423
SUBCLASS	10	4	1	1	0	UNIVERSITY-PREPARATION SERVICES	0.09222
PRODUCT	10	4	1	1	1	UNIVERSITY-PREPARATION SERVICES	0.09222
SUBCLASS	10	4	1	2	0	TRAINING COURSES	0.15201
PRODUCT	10	4	1	2	1	TRAINING COURSES	0.15201
DIVISION	11	0	0	0	0	RESTAURANTS AND ACCOMMODATION SERVICES	6.22047
GROUP	11	1	0	0	0	RESTAURANTS, CAFES, AND THE LIKE	5.57273
CLASS	11	1	1	0	0	RESTAURANTS, CAFES, AND THE LIKE	5.57273
SUBCLASS	11	1	1	1	0	RESTAURANTS, CAFES, AND THE LIKE	5.57273
PRODUCT	11	1	1	1	1	FOOD PURCHASED IN RESTAURANTS, CAFES, AND THE LIKE	5.05372
PRODUCT	11	1	1	1	2	NON-ALCOHOLIC BEVERAGES PURCHASED IN RESTAURANTS, CAFES, AND THE LIKE	0.31495

STRUCTURE	D	G	C	SC	P	DESCRIPTION CPI 2023	WEIGHT 2023=100
PRODUCT	11	1	1	1	3	ALCOHOLIC BEVERAGES PURCHASED IN RESTAURANTS, CAFES, AND THE LIKE	0.20406
GROUP	11	2	0	0	0	ACCOMMODATION SERVICES	0.64774
CLASS	11	2	1	0	0	ACCOMMODATION SERVICES	0.64774
SUBCLASS	11	2	1	1	0	ACCOMMODATION SERVICES	0.64774
PRODUCT	11	2	1	1	1	ACCOMMODATION SERVICES	0.64774
DIVISION	**12**	**0**	**0**	**0**	**0**	**INSURANCE AND FINANCIALSERVICES**	**1.10487**
GROUP	12	1	0	0	0	INSURANCE	0.85256
CLASS	12	1	1	0	0	INSURANCE	0.85256
SUBCLASS	12	1	1	1	0	INSURANCE	0.85256
PRODUCT	12	1	1	1	1	INSURANCE	0.85256
GROUP	12	2	0	0	0	FINANCIAL EXPENDITURES	0.25231
CLASS	12	2	1	0	0	FINANCIAL EXPENDITURES	0.25231
SUBCLASS	12	2	1	1	0	FINANCIAL EXPENDITURES	0.25231
PRODUCT	12	2	1	1	1	FINANCIAL EXPENDITURES	0.25231
DIVISION	**13**	**0**	**0**	**0**	**0**	**MISCELLANEOUS GOODS AND SERVICES**	**3.72905**
GROUP	13	1	0	0	0	PERSONAL CARE	2.63257
CLASS	13	1	1	0	0	ITEMS FOR PERSONAL CARE	2.28809
SUBCLASS	13	1	1	1	0	NON-ELECTRIC APPLIANCES FOR PERSONAL CARE	0.13122
PRODUCT	13	1	1	1	1	NON-ELECTRIC APPLIANCES FOR PERSONAL CARE	0.13122
SUBCLASS	13	1	1	2	0	ARTICLES FOR PERSONAL CARE	1.72393
PRODUCT	13	1	1	2	1	TOILET PAPER	0.42941
PRODUCT	13	1	1	2	2	ARTICLES FOR HAIR CARE	0.28629
PRODUCT	13	1	1	2	3	CREAMS, LOTIONS, AND SUNSCREENS	0.28454
PRODUCT	13	1	1	2	4	DISPOSABLE BABY DIAPERS	0.22784
PRODUCT	13	1	1	2	5	ORAL HYGIENE PRODUCTS	0.15189
PRODUCT	13	1	1	2	6	SOAPS	0.13415
PRODUCT	13	1	1	2	7	DEODORANTS AND ANTIPERSPIRANTS	0.13360
PRODUCT	13	1	1	2	8	MENSTRUAL HYGIENE ITEMS	0.07621
SUBCLASS	13	1	1	3	0	ARTICLES FOR PERSONAL GROOMING	0.43294
PRODUCT	13	1	1	3	1	COLOGNES AND PERFUMES	0.16433
PRODUCT	13	1	1	3	2	MAKE-UP	0.15534
PRODUCT	13	1	1	3	3	HAIR DYES AND HAIRSPRAY	0.11327
CLASS	13	1	2	0	0	HAIRDRESSING AND PERSONAL-GROOMING SERVICES	0.34448
SUBCLASS	13	1	2	1	0	HAIRDRESSING	0.20112
PRODUCT	13	1	2	1	1	HAIRDRESSING	0.20112
SUBCLASS	13	1	2	2	0	PERSONAL-GROOMING SERVICES	0.14336
PRODUCT	13	1	2	2	1	PERSONAL-GROOMING SERVICES	0.14336
GROUP	13	2	0	0	0	PERSONAL EFFECTS	0.42240
CLASS	13	2	1	0	0	JEWELLERY AND WATCHES	0.19691
SUBCLASS	13	2	1	1	0	JEWELLERY AND WATCHES	0.19691
PRODUCT	13	2	1	1	1	JEWELLERY	0.14621
PRODUCT	13	2	1	1	2	WATCHES	0.05070
CLASS	13	2	2	0	0	OTHER PERSONAL EFFECTS	0.22549
SUBCLASS	13	2	2	1	0	OTHER PERSONAL EFFECTS	0.22549
PRODUCT	13	2	2	1	1	BACKPACKS, HANDBAGS, AND SUITCASES	0.20320
PRODUCT	13	2	2	1	2	ARTICLES FOR BABIES	0.02229
GROUP	13	3	0	0	0	RETIREMENT HOMES FOR ELDERLY PERSONS	0.15651
CLASS	13	3	1	0	0	RETIREMENT HOMES FOR ELDERLY PERSONS	0.15651
SUBCLASS	13	3	1	1	0	RETIREMENT HOMES FOR ELDERLY PERSONS	0.15651
PRODUCT	13	3	1	1	1	RETIREMENT HOMES FOR ELDERLY PERSONS	0.15651
GROUP	13	4	0	0	0	OTHER SERVICES	0.51757
CLASS	13	4	1	0	0	OTHER SERVICES	0.51757
SUBCLASS	13	4	1	1	0	OTHER SERVICES	0.51757
PRODUCT	13	4	1	1	1	FUNERAL SERVICES	0.40123
PRODUCT	13	4	1	1	2	ISSUANCE OF CERTIFICATES	0.07767
PRODUCT	13	4	1	1	3	FEES FOR PARENT AND GUARDIAN CENTERS	0.03867

Annex 3. Linking of the series

The purpose linking the CPI is to create an indicator that can verify, in a single series, the long-term variations of the overall price index of an economy and thus facilitate long-term analysis. The following figure shows the results for the overall CPI when various published bases are linked together.

FIGURE 7. LINKED SERIES OF THE CPI, JANUARY 2007 TO SEPTEMBER 2023
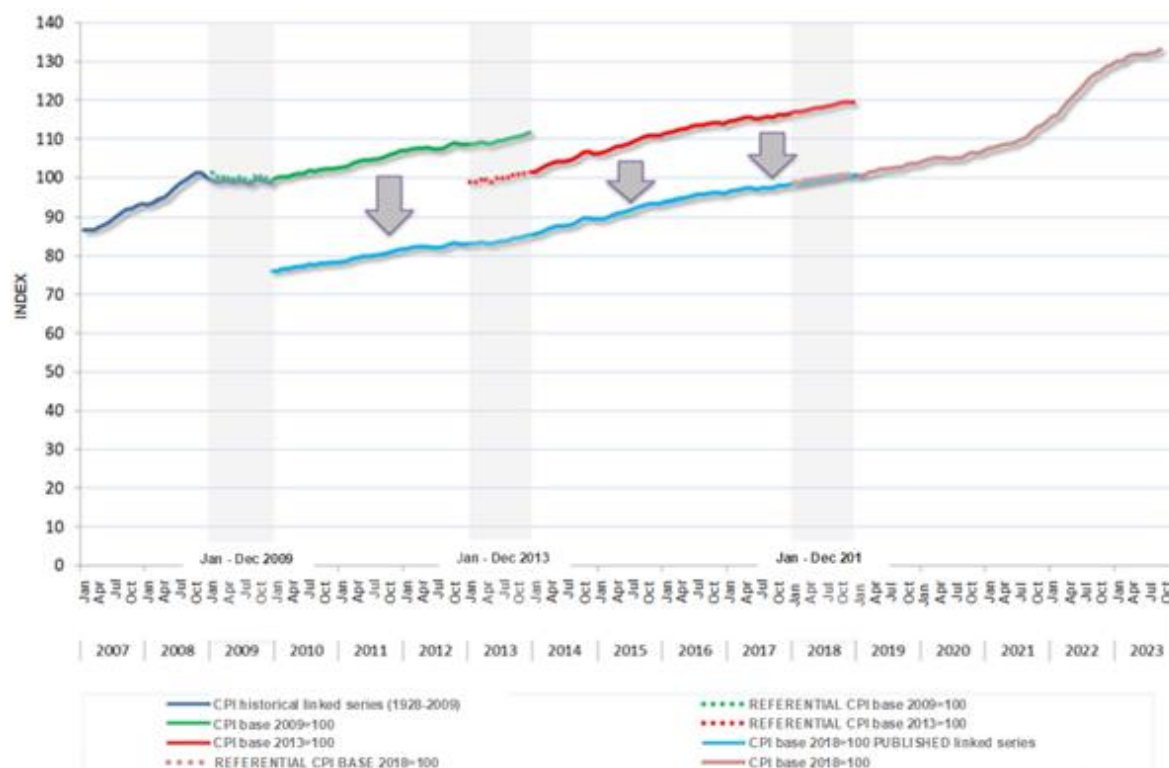
Source: Own elaboration.

The figure shows the evolution of the linked index of the CPI for changes in the base year from 2009 to date. The linked series is shown from 2009 onwards because previously the index had been only for Greater Santiago, but a national index has been published since 2009.

The gray areas show the base periods of each update (2009=100, 2013=100, and 2018=100).

The dotted lines in the figure show the reference year indicator, but the official variations come from the official index of each period. Thus, the dotted lines may differ from the official figures and therefore do not represent the official CPI variations. The main differences between the variations that the official series and the linked series (when compared to the reference series) are due to changes in methodologies (either for general changes in the basket or for specific products) as wells as to changes in the products included in the various periods and updates in the varieties of each product.

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Annex 4. Seasonal products

D	G	C	SC	P	Product description	Collection period	Reasons for seasonality
1	1	6	1	2	SEASONAL FRUIT (a)	Depends on the season in which the variety is available	Climatic
1	1	7	1	1	SEASONAL VEGETABLES (b)	Depends on the season in which the variety is available	Climatic
3	1	1	1	3	COATS FOR MEN (c), (*)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	1	1	1	1	TROUSERS FOR MEN (c), (*)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	1	1	1	2	SHIRTS AND T-SHIRTS FOR MEN (c), (*)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	1	1	1	4	UNDERWEAR AND SLEEPWEAR FOR MEN (c), (d)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	1	1	2	2	COATS FOR WOMEN (c), (*)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	1	1	2	1	TROUSERS, SKIRTS, AND DRESSES FOR WOMEN (c), (*)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	1	1	2	3	BLOUSES AND T-SHIRTS FOR WOMEN (c)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	1	1	2	4	UNDERWEAR, SWIMWEAR, AND SLEEPWEAR FOR WOMEN (c), (d), (e)	spring-summer season (July to January)	Climatic
3	1	1	3	3	COATS FOR CHILDREN (c), (*)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	1	1	3	1	TROUSERS, SKIRTS, AND DRESSES FOR CHILDREN (c), (d), (e)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	1	1	3	2	T-SHIRTS FOR CHILDREN (e)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	1	1	4	1	CLOTHING FOR INFANTS (c), (*)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	2	1	1	2	SHOES FOR MEN (c), (*)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	2	1	3	2	SEASONAL FOOTWEAR FOR CHILDREN (c), (*)	autumn-winter season (January to July) and spring-summer seasons (July to January)	Climatic
3	1	1	5	1	SCHOOL CLOTHING	January to February	Institutional

D	G	C	SC	P	Product description	Collection period	Reasons for seasonality
5	3	1	3	1	HOUSEHOLD HEATING APPLIANCES	April to August	Climatic
7	3	1	3	1	SCHOOL TRANSPORT	March and August	Institutional
9	2	2	2	1	ITEMS FOR CAMPING AND RECREATION	December to February	Climatic
9	7	1	1	1	EDUCATIONAL TEXTS	February to March	Commercial
9	2	1	2	1	TOYS	April to December	Commercial
10	1	1	1	3	EARLY CHILDHOOD EDUCATION (f)	December to March	Institutional
10	1	1	1	2	FIRST PHASE OF PRIMARY EDUCATION	December to March	Institutional
10	1	1	1	1	SECOND PHASE OF PRIMARY EDUCATION	December to March	Institutional
10	2	1	1	1	SECONDARY EDUCATION	December to March	Institutional
10	4	1	1	1	UNIVERSITY-PREPARATION SERVICES	December to March	Institutional
10	3	1	1	4	EDUCATION IN TECHNICAL CENTERS	December to March	Institutional
10	3	1	1	3	EDUCATION IN PROFESSIONAL INSTITUTES	December to March	Institutional
10	3	1	1	1	UNIVERSITY EDUCATION	December to March	Institutional
10	3	1	1	2	POSTGRADUATE EDUCATION	March to May	Institutional

Notes:

a. The varieties that make up this product are peaches, watermelons, strawberries, kiwis, pineapples, grapefruit, grapes, and melons.

b. The varieties that make up the product are chard, cabbage, mushrooms, artichokes, beets, broccoli, fresh corn, cauliflower, spinach, cucumbers, and green beans.

c. Prices from the first and last month of collection are used in the calculation only if the 50% representativeness threshold of the collected prices is met.

d. Seasonality applies only to varieties of sleepwear.

e. Seasonality applies only to varieties of swimwear.

f. The variety day nurseries is excluded.

(*) This product includes non-seasonal varieties.

Source: Own elaboration.

Annex 5. Corrections forms

ROUTE MAP

FOR OPERATIONAL CONTROL PROCESS

Month and Year   XX/XXXX
No. Varieties of the
Form = XXX
Source: XXXXX

Code 203   Yes ☐   No ☐

PROCESS	First Week	
Type of Collection	☐	Field
	☐	Telephone
	☐	Internet
Name of Price Research		
Date of Collection		
Time of Collection (start - finish)	From: To:	
Name of Supervisor (when applicable)		
Date		
Time of Supervision (start - finish)	From: To:	
Name of Reviewer		
Date		
Signature		
Name of Data-entry clerk		
Date		
Name of Data-entry clerk - Maintainer		
Date		

Identification sheet for the Source and Respondent

Establishment Code

XXX

Trade Name

XXX

Registered Name

XXX

Identification of the establishment

Date of last activity

XXX

Identification number (Rol)

XXX

Classification (CASII)   SII

Tax Identification Number (Rut)

XXX

Ad-dress

XXX

| Tele-phone | XXX | Cell phone | XXX | E-mail | XXX |

Region

XXX

Com-mune

XXX

Activity of establishment

Website

XXX

Respondent

XXX		XXX		XXX		XXX	
Name		Tele-phone		E-mail		Job	

OBSERVATIONS ABOUT THE ESTABLISHMENT:

Price Registration Forms

Division: GENERIC FORM FOR HOUSEHOLD
EQUIPMENT AND MAINTENANCE

Establishment/Variety Code

Source:
XXXXXX

Collection Month   Oct/XXXX
and Year

Basket				Field									
Basket Descrip-tion	Bas-ket Brand	Basket Specifi-cation	Bas-ket Unit	Field Unit	Field Charac-teristics	Field Brand	Field Mo-del	Previ-ous Price	Previ-ous special offer	1st Obs	Cod. Of.	Data Of.	Observation
TOOLS AND EQUIPMENT FOR THE HOUSE AND GARDEN-MISCELLEANEOUS TOOLS AND ACCESSORIES-TOOLS													
ELECTRIC TOOLS AND ACCESSORIES (5-5-1-1-1)													

	Basket Descrip-tion	Bas-ket Brand	Basket Specifi-cation	Bas-ket Unit	Field Unit	Field Charac-teristics	Field Brand	Field Mo-del	Previ-ous Price	Previ-ous special offer	1st Obs	Cod. Of.	Data Of.	Observation
1	STRING TRIMMER	Brand 1	XXX	1.00 Unit	1.00 Unit	XXX	XXX	XXX	XXX–Sep	101-0;				
2	STRING TRIMMER	Brand 2	XXX	1.00 Unit	1.00 Unit	XXX	XXX	XXX	XXX–Sep	101-0;				
3	DRILL	Brand 1	XXX	1.00 Unit	1.00 Unit	XXX	XXX	XXX	XXX–Sep	0-0;				
4	DRILL	Brand 2	XXX	1.00 Unit	1.00 Unit	XXX	XXX	XXX	XXX–Sep	0-0;				

Annex 6. Published information about the CPI

INE publishes the following CPI information on its website, www.ine.gob.cl.

Statistical Tables

- Base year 2023=100
  - Time series (Jan 2023 to date)
    - CPI XLS: Series with tabulation of the overall CPI and all of its components. Excel format (XLXS).
    - CPI CSV: Series with tabulation of the overall CPI and all of its components. Comma Separated Values (CSV) format.
    - Analytical indices XLS: Series with tabulations of analytical indices. Excel format.
    - Analytical indices CSV: Series with tabulations of analytical indices. CSV format.
    - Analytical indices CCIF 2018 Divisions XLS: Series with tabulations of analytical indices by division. Excel format.
    - Analytical indices CCIF 2018 Divisions CSV: Series with tabulations of analytical indices by division. CSV format.
    - Analytical indices, CCIF 2018 Divisions XLS: Series with tabulations of analytical indices by division. Excel format.
    - Analytical indices CCIF 2018 Divisions CSV: Series with tabulations of analytical indices by division. CSV format.
  - Referential series (January to December 2023)
    - CPI 2023 referential series XLS: Series with referential tabulations of the Overall CPI 2023=100 and all its components. Excel format.
    - CPI 2023 referential series CSV: Series with referential tabulations of the Overall CPI 2023=100 and all its components. CSV format.
    - Analytical indices CPI 2023 XLS: Series with tabulations of analytical indices. Excel format.
    - Analytical Reference CPI 2023 CSV: Series with referential tabulations of analytical indices. CSV format.
- Other base years (CPI 2018=100, CPI 2013=100, CPI 2009=100, CPI December 2008=100)
- Linked series (from 1928 to date)
  - Linked series from December 2009 to date
    - Linked historical series CPI December 2009 to date, XLS: Linked series of Overall CPI tabulations (CPI 2023=100). Excel format.
    - Linked historical series CPI December 2009 to date CSV: Linked series of Overall CPI tabulations (CPI 2023=100). CSV format.
    - Linked historical series CPI Divisions December 2009 to December 2023, XLS: Linked series of tabulations by division (CPI 2018=100). Excel format.
    - Linked historical series CPI Divisions December 2009 to December 2023, CSV: Linked series of tabulations by division (CPI 2018=100). CSV format.

- o Linked analytical indices CPI 2023 XLS: Linked series of tabulations of analytical indices (CPI 2023=100) Excel format.
  - o Linked analytical indices CPI 2023 CSV: Linked series of tabulations of analytical indices (CPI 2023=100) CSV format.
- Linked historical series 1928 to 2009
  - o Linked historical series Overall CPI (variations) 1928–2009 XLS: Tabulations with linked Overall CPI variations from 1928 to 2009. Excel format.
  - o Linked historical series Overall CPI (indices) 1928–2009 XLS: Tabulations with linked Overall CPI indices from 1928 to 2009 (December 2008=100). Excel format.
  - o Linked historical series Divisions (indices and variations) 1999–2009 XLS: Linked tabulations with indices and variations by division from 1999 to 2009 (December 2008=100). Excel format.
  - o CPIX linked historical series: Fresh fruits and vegetables; Fuels (indices and variations) 1999–2009: linked tabulations with indices and variations of the CPIX from 1999 to 2009 (December 2008=100). Excel format.
  - o Linked historical series tradable and non-tradable products (indices and variations) 1999–2009 XLS: Linked tabulations with indices and variations of tradable and non-tradable products from 1999 to 2009 (December 2008=100). Excel format.
  - o Linked historical series CPIX1 (variations) 1979–2009 XLS: Linked series with tabulations of variations of CPIX1 from 1979 to 2009 (December 2008=100).
  - o Linked historical series CPIX1 (indices) 1979–2009 XLS: Series with linked tabulations of the CPIX1 from 1979 to 2009 (December 2008=100).

Working Documents

INE's Working Documents are aimed at researchers, academics, students, and the public with particular interest in economic matters, and their purpose is to provide an exhaustive analysis of key conceptual, analytical, and methodological aspects of the statistical products produced by INE, thus contributing to the exchange of ideas among the different components of the National Statistical System.

Currently, the working documents available on the institutional website are as follows:

- Volatility and variance decomposition analysis of the CPI in Chile. INE, Working Documento No. 1 (Available in Spanish only).
- Volatility analysis and aggregate index variability decomposition, a methodological and practical framework. INE, Working Documento No. 2 (Available in Spanish and English).

Infographics

Summary document of the new CPI basket base 2023=100 that highlights the main modifications at the level of overall index and divisions, including new and merged products.

Methodologies

- Base year 2023=100
  - Methodology CPI base year 2023=100
  - Frequently Asked Questions CPI 2023: Document with the most common questions regarding the CPI.
  - CPI Basket 2023=100 Excel spreadsheet with CPI basket in each of its levels, as follows: Overall CPI, divisions, groups, classes, subclasses, and products.
  - Basket Analytical Indices CPI 2023=100: Excel spreadsheet with the basket and components of the analytical indicators.
- Other historical databases: Manuals and other methodological information from historical versions of the CPI.

Committees and Technical Notes

- Supplements: Documents that complement the technical guidelines established in the CPI Methodological Manual.
- Committees: Documents or presentations made in technical groups, where various statistical topics, methods, and technical guidelines regarding the CPI are presented and discussed.

Databases

- Microdata CSV format
  - CPI base year 2023=100: Micro-database of anonymized prices, base year 2023=100 CSV format.
  - CPI 2018=100: Micro-database of anonymized prices, CPI 2018=100 CSV format.
  - CPI 2013=100: Micro-database of anonymized prices, CPI 2013=100 CSV format.
  - CPI 2009=100: Micro-database of anonymized prices, CPI 2009=100 CSV format.
  - CPI December 2008=100: Micro-database of anonymized prices, CPI December 2008=100 CSV format.

Annex 7. Metadata on the INE website

The metadata on information available on the INE website are as follows:

Statistical Tables

- Base year 2023=100
    - Time series (January 2024 to date)
        - CPI XLS: Database in Excel format containing the following:
            - Year: Year of publication.
            - Month: Month of publication.
            - Division: Division identification according to CPI code
            - Group: Group identification according to CPI code
            - Class: Class identification according to CPI code
            - Subclass: Subclass identification according to CPI code
            - Product: Product identification according to CPI code
            - Description: Name of the division/group/class/subclass/product
            - Weight: Data in number format indicating the weight of the division/ group/class/subclass/subclass/product
            - Index: Data in number format indicating the value of the index of the division/group/class/subclass/subclass/product in the correspond-ing period.
            - Monthly variation: Data in number format indicating the percentage of monthly variation of the division/group/class/subclass/subclass/ product in the corresponding period.
            - Cumulative variation: Data in number format indicating the percentage of cumulative variation of the division/group/class/ subclass/subclass/product in the corresponding period.
            - 12-month Variation: Data in number format indicating the twelve-month variation of the division/group/class/subclass/subclass/product in the corresponding period.
            - Monthly impact: Data in number format indicating the influence of the division/group/class/subclass/subclass/product on the overall index in the corresponding period.
            - Cumulative impact: Data in number format indicating the influence of the division/group/class/subclass/subclass/product on the overall index in the corresponding period.
            - Twelve-month impact: Data in number format indicating the twelve-month influence of the division/group/class/subclass/subclass/ product on the overall index in the corresponding period.
        - CPI CSV: Database in CSV format. This database contains the same information as the CPI in XLS format.
            - Analytical Indices XLS: Database in Excel format that contains the following:
            - Year: Year of publication.
            - Month: Month of publication.

- Description: Name of the analytic calculation.
- Index: Data in number format indicating the value of the index of the analytic calculation in the corresponding period.
- Monthly variation: Data in number format indicating percentage of monthly variation of the analytic calculation in the corresponding period
- Cumulative variation: Data in number format indicating percentage of cumulative variation of the analytic calculation in the corresponding period
- 12-month Variation: Data in number format indicating percentage of twelve-month variation of the analytic calculation in the corresponding period
- Analytic indices CSV: Database in CSV format. This database contains the same information as the Analytical Indices in XLS format.
- Referential series (January to December 2023)
- CPI 2023 referential series XLS: Database in Excel format containing the following:
- Year: Year of publication.
- Month: Month of publication.
- Division: Division identification according to CPI code
- Group: Group identification according to CPI code
- Class: Class identification according to CPI code
- Subclass: Subclass identification according to CPI code
- Product: Product identification according to CPI code
- Description: Name of the division/group/class/subclass/product
- Weight: Data in number format indicating the weight of the division/group/class/subclass/subclass/product
- Index: Data in number format indicating the value of the referential series of the index for division/group/class/subclass/subclass/product in the corresponding period.
- Monthly variation: Data in number format indicating the percentage of monthly variation of the division/group/class/subclass/subclass/ product in the corresponding period.
- Cumulative variation: Data in number format indicating the percentage of cumulative variation of the division/group/class/ subclass/subclass/product in the corresponding period.
- 12-month Variation: Data in number format indicating the twelve-month variation of the division/group/class/subclass/subclass/product in the corresponding period.
- Monthly impact: Data in number format indicating the influence of the division/group/class/subclass/subclass/product on the overall index in the corresponding period.

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- - - Cumulative impact: Data in number format indicating the influence of the division/group/class/subclass/subclass/product on the overall index in the corresponding period.
    - Twelve-month impact: Data in number format indicating the twelve-month influence of the division/group/class/subclass/subclass/ product on the overall index in the corresponding period.
  - CPI 2023 referential series CSV: Database in CSV format. This database contains the same information as CPI 2023 referential series XLS.
  - Referential Analytic Indices CPI 2023 XLS: Database in Excel format containing the following:
    - Year: Year of publication.
    - Month: Month of publication.
    - Description: Name of the analytic calculation.
    - Index: Data in number format indicating the value of the referential value of the analytic calculation in the corresponding period.
    - Monthly variation: Data in number format indicating percentage of monthly variation of the analytic calculation in the corresponding period
    - Cumulative variation: Data in number format indicating percentage of cumulative variation of the analytic calculation in the corresponding period
    - 12-month Variation: Data in number format indicating percentage of twelve-month variation of the analytic calculation in the corresponding period
  - Referential Analytical Indices CPI 2023 CSV: Database in CSV format. This database contains the same information as the Referential Analytical Indices CPI 2023 in XLS format.
- Other base years (CPI 2018=100, CPI 2013=100, CPI 2009=100, CPI December 2008=100)
- Linked series (since 1928)
  - Linked series from December 2009 to date
    - Linked historical series CPI December 2009 to date, XLS: Database in Excel format containing the following:
      - Year: Year of publication.
      - Month: Month of publication.
      - Index: Data in number format indicating the value of the index in the corresponding period.
      - Monthly variation: Data in number format indicating percentage of monthly variation of the index in the corresponding period
      - 12-month Variation: Data in number format indicating percentage of twelve-month variation of the index in the corresponding period.
    - Linked historical series CPI December 2009 to date, CSV: Database in CSV format. This database contains the same information as the linked historical series of the CPI from December 2009 to date in XLS format.

- Linked historical series CPI Divisions December 2009 to date, XLS: Database in Excel format containing the following:
  - Year: Year of publication.
  - Month: Month of publication.
  - Division: Division identification according to CPI code
  - Description: Name of the division
  - Index: Data in number format indicating the value of the index of the division in the corresponding period.
  - Monthly variation: Data in number format indicating the percentage of monthly variation of the division in the corresponding period.
- Linked historical series CPI Divisions December 2009 to date, CSV: Database in CSV format. This database contains the same information as the linked historical series of Divisions of the CPI from December 2009 to date in XLS format.
- Linked Analytical Indices CPI 2023 XLS: Database in Excel format containing the following:
  - Year: Year of publication.
  - Month: Month of publication.
  - Description: Name of the analytical index
  - Index: Data in number format indicating the value of the index of the analytic index in the corresponding period.
  - Monthly variation: Data in number format indicating percentage of monthly variation of the analytic index in the corresponding period
- Linked Analytical Indices CPI 2023 CSV: Database in CSV format. This database contains the same information as the Linked Analytical Indices CPI 2023 in XLS format.

- Linked historical series 1928 to 2009
  - Linked Historical Series Overall CPI (variations) 1928–2009 XLS: Database in Excel format containing the following:
    - Year: Year of publication.
    - January: Variation of the CPI in January of the year
    - February: Variation of the CPI in February of the year
    - March: Variation of the CPI in March of the year
    - April: Variation of the CPI in April of the year
    - May: Variation of the CPI in May of the year
    - June: Variation of the CPI in June of the year
    - July: Variation of the CPI in July of the year
    - August: Variation of the CPI in August of the year
    - September: Variation of the CPI in September of the year
    - October: Variation of the CPI in October of the year
    - November: Variation of the CPI in November of the year
    - December: Variation of the CPI in December of the year

- Linked historical series Overall CPI (indices) 1928–2009 XLS: Database in Excel format containing the following:
  - Year: Year of publication.
  - January: Index of the CPI in January of the year
  - February: Index of the CPI in February of the year
  - March: Index of the CPI in March of the year
  - April: Index of the CPI in April of the year
  - May: Index of the CPI in May of the year
  - June: Index of the CPI in June of the year
  - July: Index of the CPI in July of the year
  - August: Index of the CPI in August of the year
  - September. Index of the CPI in September of the year
  - October: Index of the CPI in October of the year
  - November: Index of the CPI in November of the year
  - December. Index of the CPI in December of the year
- Linked historical series divisions (indices and variations) 1999–2009: Database in Excel format containing the following:
  - Year: Year of publication
  - Month: Month of publication.
  - Food and non-alcoholic beverages:
    - Index: Value of the index of the division
    - Variation: Monthly variation of the division.
  - Alcoholic beverages and tobacco:
    - Index: Value of the index of the division
    - Variation: Monthly variation of the division.
  - Clothing and footwear:
    - Index: Value of the index of the division
    - Variation: Monthly variation of the division.
  - Accommodation, water, electricity, and other fuels:
    - Index: Value of the index of the division
    - Variation: Monthly variation of the division.
  - Furnishings, household equipment, and routine household maintenance:
    - Index: Value of the index of the division
    - Variation: Monthly variation of the division.
  - Health:
    - Index: Value of the index of the division
    - Variation: Monthly variation of the division.
  - Transport:
    - Index: Value of the index of the division
    - Variation: Monthly variation of the division.
  - Communications:
    - Index: Value of the index of the division

- Variation: Monthly variation of the division.
    - Recreation and culture:
        - Index: Value of the index of the division
        - Variation: Monthly variation of the division.
    - Education:
        - Index: Value of the index of the division
        - Variation: Monthly variation of the division.
    - Restaurants and hotels:
        - Index: Value of the index of the division
        - Variation: Monthly variation of the division.
    - Miscellaneous goods services:
        - Index: Value of the index of the division
        - Variation: Monthly variation of the division.
- CPIX linked historical series: Fresh fruits and vegetables; Fuels (indices and variations) 1999–2009: Database in Excel format containing the following:
    - Year: Year of publication
    - Month: Month of publication.
    - CPI X*:
        - Index: Value of the index of the division
        - Variation: Monthly variation of the division.
    - CPI of fresh fruit and vegetables:
        - Index: Value of the index of the division
        - Variation: Monthly variation of the division.
    - CPI fuels:
        - Index: Value of the index of the division
        - Variation: Monthly variation of the division.
- Linked historical series tradable and non-tradable products (indices and variations) 1999–2009: Database in Excel format containing the following:
    - Year: Year of publication
    - Month: Month of publication.
    - Tradable products:
        - Index: Value of the index of the division
        - Variation: Monthly variation of the division.
    - Non-tradable products:
        - Index: Value of the index of the division
        - Variation: Monthly variation of the division.
- CPIX1 linked historical series (variation) 1979–2009: Database in Excel format containing the following:
    - Year: Year of publication.
    - January: Variation of the CPI in January of the year
    - February: Variation of the CPI in February of the year
    - March: Variation of the CPI in March of the year
    - April: Variation of the CPI in April of the year
    - May: Variation of the CPI in May of the year

- o June: Variation of the CPI in June of the year
- o July: Variation of the CPI in July of the year
- o August: Variation of the CPI in August of the year
- o September: Variation of the CPI in September of the year
- o October: Variation of the CPI in October of the year
- o November: Variation of the CPI in November of the year
- o December: Variation of the CPI in December of the year
- CPIX1 linked historical series (indices) 1979–2009:
  - o Year: Year of publication.
  - o January: Index of the CPI in January of the year
  - o February: Index of the CPI in February of the year
  - o March: Index of the CPI in March of the year
  - o April: Index of the CPI in April of the year
  - o May: Index of the CPI in May of the year
  - o June: Index of the CPI in June of the year
  - o July: Index of the CPI in July of the year
  - o August: Index of the CPI in August of the year
  - o September: Index of the CPI in September of the year
  - o October: Index of the CPI in October of the year
  - o November: Index of the CPI in November of the year
  - o December: Index of the CPI in December of the year

Annex 8. The CPI calculator

INE has made the **CPI calculator** available to the public on its institutional website[90]. This tool is designed to readjust calculations and price variations of the overall index between periods quickly and efficiently. This tool eliminates the need to manually calculate readjustment factors to obtain the desired variations.

To use the CPI calculator correctly to readjust a certain value and calculate the variation of the CPI between periods, users need to know only the value to be adjusted and the initial and final periods of readjustment.

With algorithms that replicate the readjustment calculation shown in Annex 1, the CPI calculator uses the corresponding linked series of the overall CPI for each period, and it has a precision of twelve decimal places. Because calculations obtained through the manual method use published tabulations with two decimal places of precision, they may vary from the results obtained from through the CPI calculator, which uses twelve decimal places.

For practical purposes, the CPI calculator shows the final readjusted monetary value with the variation of the price index to one decimal place.

Another important feature of the calculator is that **it does not permit the selection of a month for which there is no published index**. The figure shows that on August 16, 2023 the value of the CPI for August is not yet published, so no month later than July of that year can be selected as the final month for the calculation.

FIGURE 8. EXAMPLE USE OF CPI CALCULATOR: PRICE VARIATION WHEN THE FINAL INDEX IS NOT PUBLISHED

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[90] See, https://calculadoraipc.ine.cl

To calculate **the CPI variation for June 2023**, the calculator should indicate May 2023 as the starting month because it is measuring the price variation between 1 June and 30 June 2023, as shown in the figure below.

FIGURE 9. EXAMPLE CPI CALCULATOR: PRICE VARIATION IN JUNE 2023

If the initial month is the month prior to the month of calculation, the CPI calculator will indicate that there is no variation at all ("Sin variación" appears), because the variation within the same month is being requested, as shown in the following figure. In this regard, the CPI considers price variations between months, so it is not possible to calculate price variations at a specific date of the month. For example, it is not possible to calculate the price variation between May 15 and June 15, because the price vector used to calculate a variation would consider the prices collected in June compared to the prices collected in May.

FIGURE 10. EXAMPLE CPI CALCULATOR: PRICE VARIATION WHILE ERRONEOUSLY USING THE INITIAL MONTH

The calculation process using the CPI calculator is presented below, and the manual results of the previous examples are contrasted. The examples use the calculator of the CPI 2018=100, because, at the time of writing, the CPI 2023 has not yet been published.

Case 1. $150,000 (expressed in current pesos[91]) adjusted from May 1932 to June 2006.

Case 2. $150,000 adjusted from February 2010 to June 2017.

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[91] Whenever it is necessary to adjust monetary values for dates before 29 September 1975, the user must convert the values to current pesos. The old pesos were in effect until December 31, 1959. The escudos were in effect until September 28, 1975 and finally, as of September 29, 1975, current pesos, or pesos as they are commonly referred to today, are used. The relations between the currencies are as follows: 1 escudo = 1,000 old pesos, 1 current peso = 1,000 escudos and 1 current peso = 1,000,000 old pesos.

Case 3. $150,000 adjusted from October 1998 to December 2015.

Case 4. $150,000 must be adjusted from May 2019 to August 2023. At the time of the monetary value adjustment, the CPI for August 2023 has not yet been published (the date is seven days prior to the publication on the index, which will occur at 7:59 a.m. on Friday, 8 September).

As indicated above, when the final index for calculating the value to be readjusted is not published, the CPI calculator does permit the selection of that month.

Because the calculation is being made prior to the publication of the August CPI, the only thing that can be done is to calculate the adjusted value as of 31 July 2023 (the last published value of the CPI).

By proceeding in this manner, the $150,000 of May 2019 is adjusted to $195,300 for July 2023.

If the index for the previous month $(t-1)$ **is not yet published**, **the update of the monetary value will be for the last day of the preceding month of the previous month** $(t-2)$, because no other information is available when the calculation is made.