National Accounts of Chile

2003 Benchmark Compilation








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Introduction

In this publication, the Central Bank of Chile presents the 2003 reference data for the Chilean economy's national accounts, which form part of regular revisions of this system.

The purpose of the new benchmark is to establish the "best-levels" estimates of the macroeconomic aggregates for 2003, to be used as the benchmark for new annual and quarterly estimations of national accounts. The information about products and industries is therefore organized into supply-use tables, while information regarding institutions is organized under integrated economic accounts.*

The method and procedures for preparing these figures and the results are presented in the six chapters of this publication:

Chapter 1: Benchmark compilation.
The basic concepts used in the national accounts preparation cycle and its purposes are explained. Moreover, the basic characteristics of the 2003 benchmark compilation for Chile are explained and compared to previous benchmarks.

Chapter 2: Supply-use tables.
This chapter presents the concepts behind the benchmark compilation supply-use tables and the reconciliation required to balance them. It also explains how these concepts are applied in Chile.

Chapter 3: Input-output matrix.
This chapter presents the input-output matrix based on supply-use tables developed for this benchmark compilation. It examines symmetric matrix options for products and industries based on hypotheses regarding technology and the structure of sales. The chapter concludes with a presentation of the Leontief inverse matrix results.

Chapter 4: GDP by industry: sources and methods.
This chapter describes the sources and methods used in studies of the following industries: agriculture, forestry and fishing; capture fishery and aquaculture; mining; manufacturing; electricity, gas and water; construction; wholesale and retail trade; restaurants and hotels; transportation; communications; financial services; business services; health; education; other personal and social services; public administration, and owner-occupied dwellings.

Chapter 5: Cross-industry studies.
This chapter describes the cross-industry studies that complement the GDP by industry measures. These studies were carried out for: foreign trade, gross fixed capital formation, inventory change, household consumption, taxes, employment and wages, and small business.

Chapter 6: Presentation of results.
This chapter offers 35 tables containing the results of this data collection. To make consultation easier, an overview table is also provided, along with the list of industries and products in the two versions published: 12 by 12 and 73 by 73 industries and products. A summarized version of results is provided in this document; full details for 73 by 73 industries and products are provided in the attached CD-ROM and the website http://www.bcentral.cl.

*/ The integrated economic accounts will be published in march 2007.

Preparation of the 2003 benchmark compilation was carried out by the Central Bank of Chile's Information and Statistical Research unit (Gerencia de Información e Investigación Estadística), headed by Ricardo Vicuña, through its National Accounts Department, headed by Francisco Ruiz. José Venegas, head of National Accounts group, supervised technical aspects. Antonio Escandón provided technical advice throughout the project.

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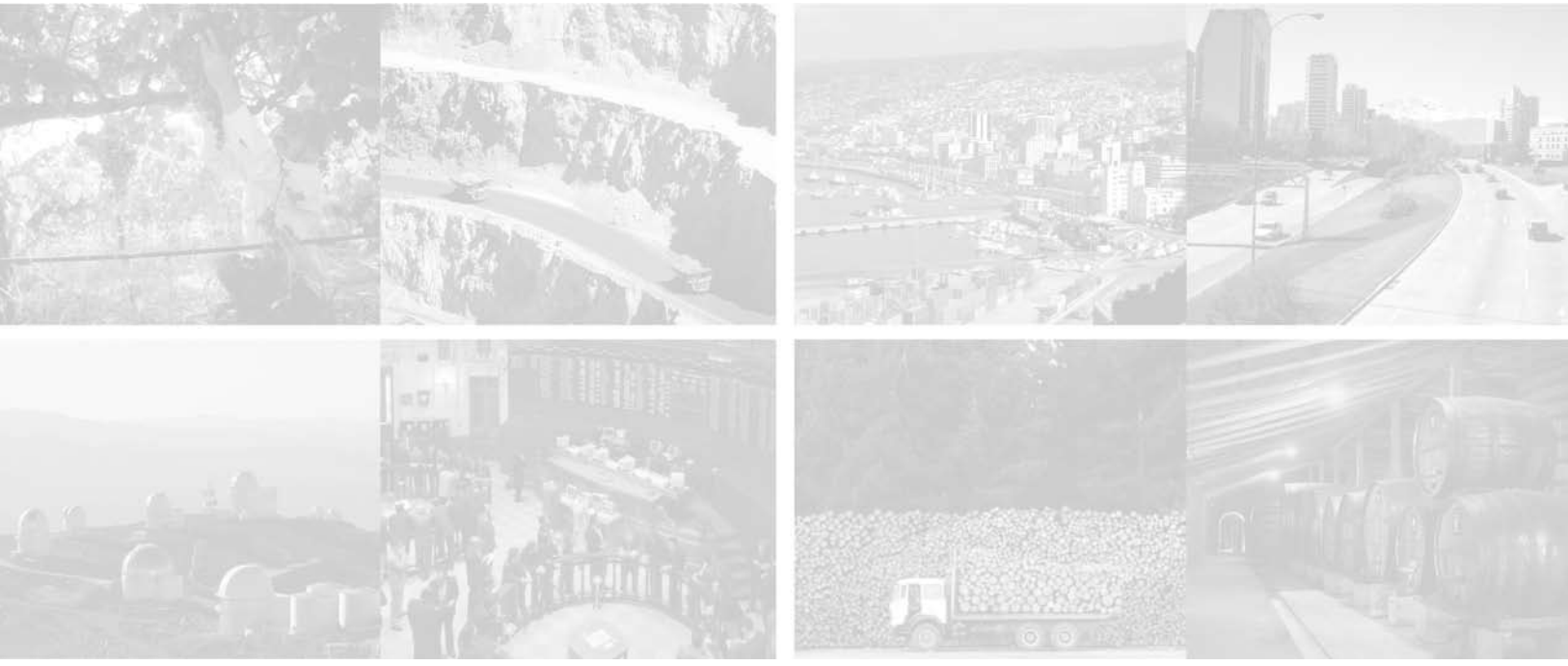
Summary



Summary

The purpose of this summary is to provide an overview of the conceptual framework and the main results included in the benchmark compilation on Chile's national accounts (2003). Section one describes how national accounts are compiled, distinguishing between benchmark compilation and data that is the result of yearly or quarterly estimated compilations. Section 2 defines the purposes of this benchmark compilation. Section 3 examines the preparation of the 2003 benchmark compilation and results, including the different tables that make up the supply-use table and the input-output matrix. Section 4 provides the main advances in terms of both sources and methods. Finally, Section 5 presents a synthesis comparing the results from the 2003 benchmark compilation with previously estimated compilation for the same year.

1. Compilation of national accounts

In preparing national accounts there are two kinds of compilation: a benchmark compilation and a yearly or quarterly estimated compilation.

Benchmark compilation uses the most appropriate sources and methods to calculate the national accounts for a particular period, so they reflect as accurately as possible the state of the economy at a given moment. The values derived from benchmark compilation constitute the "best-levels" estimates of macroeconomic aggregates, given the information available (Stanley-Allen *et al.*,2005).

For its preparation, benchmark compilation requires a special statistical effort, to bring together the most detailed and highest quality information possible, and incorporate the latest methodological advances in the field. Because this makes benchmark compilation costly in terms of both time and resources, it is not done for successive or high frequency periods, but rather every certain number of years.

The purpose of the estimated compilations is to measure national accounts for periods for which there is no benchmark compilation, whether these be annual, quarterly or monthly. This means that the yearly and quarterly estimated version provides national accounts for the years and quarters between one benchmark compilation and the next.[1] Calculating these is based on the results from the latest benchmark compilation available, basically the cost structure and the prices implicit therein. Thus, the follow-up compilation values reflect the "best-change" estimates available since the most recent benchmark accounts were compiled (Stanley-Allen *et al.* 2005).

Finally, it should be noted that benchmark accounts and yearly estimated compilations reflect national accounts' compilation cycle. Each cycle begins with a given benchmark compilation, continues with yearly estimates that include annual and quarterly accounts, based on the latest benchmark compilation, and ends with the preparation of a new benchmark compilation, which in turn begins a new cycle.

[1]/ The yearly estimated compilation is also known as the recurrent (UN. 1998). non-benchmark (Stanley-Allen et al.. BEA. 2005). or follow-up (Central Bank of Chile. 2004) compilation. Note that the lack of monthly data makes it impossible to estimate national accounts for this period. In this case. the yearly estimated compilation makes it possible to estimate monthly activity indicators instead.

2. The objectives of the benchmark compilation

The main purpose of this benchmark compilation is to obtain better and more detailed estimates for the components of national accounts, compared to those obtained for non-benchmark years. This does makes it possible to revise the compilation previously estimated for the same year, using more up-to-date sources and methods, in line with international best practices.[2] In this context, benchmark compilation can be understood as part of the usual cycle of revisions national accounts. In fact, the results of a new benchmark compilation make it possible to revise annual, quarterly and monthly measures for the same year, previously obtained from the follow-up compilation.

Secondly, given normal practice in Chile of compiling national accounts at constant prices for a fixed base period, benchmark compilation also serves to establish a new base year for constant prices.

Finally, the baseline information collected in benchmark compilation makes it possible to prepare the input-output matrix,[3] based on which it is possible to examine the economy's structural properties.

3. 2003 Benchmark compilation

The 2003 benchmark compilation is the fifth carried out in Chile, with previous efforts referring to 1962, 1977, 1986 and 1996.[4] The recent reduction in the compilation cycle from ten (1986 - 1996) to seven years (1996 - 2003) reflects efforts to strengthen the national accounts revision policy, to improve their accuracy and bring them into line with best international practices in terms of statistic quality.

The results of the new benchmark compilation replace the estimates that, in the context of the 1996 benchmark, were carried out for 2003. In fact, the new benchmark compilation improves existing measures for the year, since it uses more appropriate sources and methods to determine the "best- levels" estimates of the macroeconomic variables in that period. Thus, the assumptions used for that year in the estimated compilation, based on the more limited information available, were abandoned. For example, in some cases annual accounts estimate activity based on assumptions of "constant productivity", using fixed coefficients for intermediate consumption and the gross value for production or, likewise, for value added and gross output, at constant prices, determined in the 1996 benchmark compilation.

With the new 2003 benchmark compilation, the previously estimated annual accounts were reviewed, as were quarterly and monthly estimates. Accounts prepared in these same frequencies for 2004, 2005 and 2006[5] were also revised in nominal terms and rebased in constant terms.

3.1. Organization of compilation projects

The basic figures used in the 2003 benchmark compilation were obtained from several projects and studies summarized in table 1. In general, these reflect the need to correct the lack of some data, make data more representative and adjust the existing source of information in a current year.

[2]/ The 2003 benchmark compilation exercise incorporated recommendations from the IMF evaluation from April 2006 (IMF; 2006).

[3]/ Note that the preparation of a new price base year and an input-output matrix are secondary objectives since these can be achieved without making as extensive and in-depth an effort as required by the benchmark compilation.

[4]/ The first four benchmark compilations were called "input-output matrix" and/or "base year". The former term reflected the fact that in 1962 and 1977 balances for supply and demand were obtained using an input-output matrix (limiting outputs from economic activity only to the main ones); this use was extended to the compilations for 1986 and 1996. although compatibilization in these cases was done using supply and use tables. The benchmark compilation has also been known as the base year. given that for all these series the benchmark year has become the fixed base period for measurements of quantities at constant prices. using Laspeyres indexes of prices for a fixed base year.

[5]/ These revisions will be presented in March 2007. when the 2006 national accounts are published.

TABLE 1
Benchmark compilation projects and studies

Topics	Project (study)
Industry	Agriculture and forestry
	Fishing
	Mining
	Manufacturing
	Electricity. gas and water
	Construction
	Wholesale and retail trade
	Restaurants and hotels
	Transportation
	Communications
	Education
	Health
	Other services
Institutional	Government
	Financial
	Non-financial corporations
	Non-profits Institutions
Cross-Industry Intersectorial	Rest of the world
	Investment
	Small business
	Inventory change
	Household consumption
	Supply and use balancing
	Processing platforms
	Employment and wages

As table 1 samples, projects and studies were broken down into the following three categories:

(i) Economic industries. These focus on the preparation of production accounts, that is, obtaining values for production, intermediate inputs and value added, using economic surveys, administrative records, financial statements and numerous statistics for volumes and prices. To complement this, these projects provided destination hypothesis data (intermediate, consumption, capital and exports) for products included in industries examined.

(ii) Institutional industries. These focus on preparing institutional accounts. Data came mainly from company financial statements and government budget statements and balance sheets. The results from these projects made it possible to complement, validate and balance production data for each industry with institutional data on income, expenditure and accumulation.

(iii) Cros-Industry. These focused on meeting one of the following three objectives: (a) compiling information that cuts across several industries, such as investment studies, inventory change, household consumption, rest of the world, small business, and employment and wages; (b) build software processing platforms to update the data model used in national accounts, and develop a range of software industry and cross-industry solutions; and (c) contribute to the last phase of the 2003 benchmark compilation program which involves balancing supply and use of goods and services.

3.2. Supply-use table

The projects described helped to determine how thousands of products from more than 400 industries, are produced and used. To turn all this information into national accounts aggregates, primary information underwent several stages of treatment: classification, validation, standardization to conform to national accounts concepts and preparation of production accounts. At this last stage, data for 73 products and 73 industries was produced.

To ensure the consistency of a heterogeneous set of figures such as these, the aggregate information was organized in the supply-use table, which consists of seven main tables whose meaning is explained in chapter 2. For the purposes of this summary, the reference to table 2 is sufficient: it illustrates, by way of example, a version of the 2003 supply-use table reduced to three products and three industries, with the resulting benchmark compilation data.

TABLE 2

2003 Supply-use table (trillions of pesos)

SUPPLY

	Make matrix (*) Basic price				Total supply Purchaser price							USE: Use matrix (**) Purchaser price				Final transactions Purchaser price					
	Goods	Trade	Services	Gross output. Basic price	Imports c.i.f.	Import duties	Trade margins	Taxes on products	Non-deductible VAT	Total supply. purchaser price	Supply-use balance		Goods	Trade	Services	Intermediate demand	Consumption	Gross fixed capital formation	Inventory change	Exports	Final demand	Total use. Purchaser price
	Table 1				Table 2	Table 7.2	Table 6	Table 7.1	Table 5				Table 3									
	Industries												Industries									
Goods	45.9	0.1	0.1	46.0	13.3	0.5	8.4	0.8	2.6	71.6	0.0	Products: Goods	21.4	1.4	6.2	29.1	16.9	10.3	0.5	14.9	42.6	71.6
Trade	0.8	9.1	0.2	10.1	0.4	-	-8.4	-	0.1	2.3	0.0	Trade	0.4	0.4	0.5	1.3	0.7	0.0	0.0	0.3	1.0	2.3
Services	0.5	0.7	40.1	41.2	2.1	-	-	-	1.1	44.3	0.0	Services	6.0	3.7	11.3	20.9	20.6	0.0	0.0	2.8	23.4	44.3
TOTAL	47.2	9.9	40.3	97.4	15.8	0.5	0.0	0.8	3.8	118.3			27.8	5.5	18.0	51.3	38.2	10.3	0.5	18.0	67.0	118.3
Other goods:					0.8						0.0		Table 4				0.1			0.7		
and services (***)												Value added. Basic price	19.4	4.4	22.3	46.0						
												Wages	6.8	2.8	11.6	21.1						
												Gross surplus	12.4	1.4	10.1	23.9						
												Other taxes on net production	0.2	0.2	0.6	1.0						
												Gross output (GO). Basic price	47.2	9.9	40.3	97.4						
												GO – inputs balance	0.0	0.0	0.0							

(*) : Part of the supply table which describes domestic production.

(**) : Part of the use table which describes intermediate consumption.

(***) : Spending by Chilean tourists abroad and foreign tourists in Chile.

Source: Based on the different industry and cross-industry studies reported in table 1.

As table 2 indicates, a balance is achieved between supply and use data (column labeled supply-use balance, with values of zero in all cells). It is precisely this consistency which makes national accounts estimates more robust than simple economic indicators. In particular, preparation of a supply-use table ensures that for every one of the 73 products, domestic and international inputs supplied at the basic price, plus margins and taxes, equal intermediate and final demand at purchaser prices. Moreover, this ensures that for every one of the 73 industries, domestic production at basic prices coincides with intermediate consumption and value added at purchaser prices (row labeled GO – inputs balance).

However, to achieve the supply-use balance requires a balancing process, given the differences in coverage, classification and quality of the information used. This means modifying the variables present in the compromised identity. Thus, for example, if supply exceeds use, some supply components are reduced and/or some use components increased. Similarly, if production exceeds intermediate consumption plus value added, some component of production is reduced and/or some element of intermediate consumption and/or value added is increased. Normally, the component that is most modified is the one coming from the least reliable source. Similarly, the balancing process is simultaneous in the sense that reconciliation of products affects reconciliation of industries, and vice versa.

The benchmark compilation make it possible to estimate all records in the tables within table 2, being the sole source for the make matrix (table 1) and the use matrix (table 3). In contrast, given that the availability of information decreases as the frequency of the estimates rises, in compiling annual accounts, complete information is not available for the make matrix or the use matrix. In the case of the quarterly compilation, information about value added components is also lacking (table 4). Finally, for the Monthly Economic Activity Indicator (Indicador Mensual de Actividad Económica, Imacec), the information covers less and refers mainly to industry production indicators. In general, the estimation of records not available with greater frequency is done assuming that relations between them obtained from less frequent versions remain constant.

3.3 Input-output matrix

The input-output matrix (IOM) consists of a transformation of the supply-use table (table 2) and is an additional result of this benchmark compilation. Its calculation is based on obtaining a diagonal make matrix and use matrix, both valued at basic prices, according to certain technological and industry assumptions (transformation operations are explained in chapter 3). The results of the IOM are presented using 73 products and 73 industries on the website, www.bcentral.cl, and at a more aggregate level in this publication. For the purposes of this summary, table 3 presents a reduced version using three products and three industries.

TABLE 3

2003 Input-Output Matrix

Domestic products at basic prices

Industry by industry. Assumption: Technology activity

(trillions of pesos)

Make matrix

	Industries: Goods	Trade	Services
Goods	47.2		
Trade		9.9	
Services			40.3

Input-output matrix

		Industries: Goods	Trade	Services	Consumption	GFCF	Inventory change	Exports	Total use. Basic price
Industries	Goods	13.4	0.8	3.9	8.0	7.0	0.5	13.7	47.2
	Trade	2.0	0.3	1.2	4.5	0.8	0.0	1.1	9.9
	Services	5.7	3.5	8.9	19.4	0.0	0.0	2.8	40.3
Imports c.i.f.		6.3	0.8	3.1					
Duties + taxes on goods and services		0.3	0.0	0.3					
Non-deductible VAT		0.1	0.0	0.6					
		27.8	5.5	18.0					
Value added		**19.4**	**4.4**	**22.3**					
Wages		6.8	2.8	11.6					
Gross surplus		12.4	1.4	10.1					
Other taxes on net production		0.2	0.2	0.6					
GO. Basic price		**47.2**	**9.9**	**40.3**					

Source: 2003 supply-use table.

The IOM is used to derive the direct and indirect technical coefficient matrix per final demand unit (known as the Leontief matrix), which make it possible to explore the economy's structural static properties. For example, they can be used to determine changes in industrial production compatible with changes in demand, or the impact of a change in primary costs on prices. They are also used to examine structural changes and usually serve as the basis for computable general equilibrium model identities.

4. Improvements to sources and methods

Improvements in sources for the 2003 benchmark focused on improving the availability of statistics. Unlike sources used in the 2003 estimation derived from the 1996 benchmark compilation, this new benchmark used the following special studies, among others: agriculture, fruit farming, livestock, manufacturing, construction, wholesale and retail trade, restaurants and hotels, transportation and other services, in particular, business services. Moreover, cross-industry studies (rest of the world, investment, inventory change, consumption, taxes, employment and wages, and small business) contributed sources and background not available in the 1996 annual accounts based on the 1996 benchmark. Sources associated with tax registries for income, wages and a special survey of small businesses, in particular, were developed and improved.

Meanwhile, improvements to methods centered on changing the classification of specific productive units or products and giving a special treatment to selected transactions. These methodological changes included:

- Recognition of production given the natural growth of planted forests, which generates own input in the forestry industry and a change in inventories of areas not currently being exploited.
- Reclassification of salmon production out of manufacturing and into capture fishery.
- Inclusion of own input within the production and intermediate consumption of a single industry. In previous compilations, own inputs were generally posted in net terms, that is, they did not appear as production or intermediate consumption.
- A change in measuring the production of the gas industry. Previously, no distinction was made between gas manufactured by companies themselves and imported gas, within the measure of total city gas produced. In the new compilation, production is defined solely as the margin of city gas imported and transported in gas pipelines.
- A change in the treatment of machinery and equipment used mainly in construction. The previous edition considered this item primarily as own capital goods, reflected in the cost structure. In this edition, the use of machinery and equipment was counted as the purchase of rental business services, reflecting the growing outsourcing of these services.
- Reclassification of governmental in-kind transfers from intermediate consumption to final consumption. Government also now includes embassy expenditures by type of good and service. Previously these were entered under other goods and services.

Moreover, a series of lower impact innovations were applied to industrial figures, among them treatment of milk production for own consumption in the agricultural industry and removal of the oil refinery plant in Magellan from mining, reclassified as manufacturing, among others.

5. Differences between benchmark and yearly estimated compilations

An analysis of the results reveals that in the 2003 benchmark compilation Gross Domestic Product (GDP) was slightly higher (0.4%) than estimated in the annual accounts estimates for the same year. This contrasts significantly with the 1996 benchmark compilation, when GDP for the year was more than 10 percentage points higher than the level obtained by the annual estimate compilation prepared for that same year.

The 2003 benchmark estimate for value added was 0.7% higher than estimated by the non-benchmark account, while gross output was 6.8% higher. These results are averages and, therefore, compatible with changes in components that tend to offset each other.

As table 4 reveals, for the economy as a whole and according to the benchmark compilation, 100 production units are compatible with 51 intermediate consumption or 49 value added units. Meanwhile, for the non-benchmark compilation the same 100 production units were associated with 48 intermediate consumption and 52 value added units. In other words, the decline in value added per production unit was not captured by the annual estimated compilation. Possible reasons for this include the new method applied to measure outputs from own inputs and outsourcing of services previously provided by the company itself.

TABLE 4
Intermediate consumption coefficients (IC) to GO, 2003

Industry	IC/GO	
	AEc	Bc
Goods	0.54	0.59
Trade	0.53	0.55
Services	0.39	0.40
Total	**0.48**	**0.51**

AEc = Annual estimated compilation 2003 base 1996.
Bc = Benchmark compilation 2003 base 2003.
Source: 2003 Supply-use table and National Accounts of Chile 1996-2005.

An analysis of the differences in benchmark and annual estimated compilation for 2003 is discussed, with reference to GDP measured according to the production, expenditure and income approach.

5.1. Production approach

Table 5 presents the differences in production, intermediate consumption and value added using benchmark and annual estimated compilation,[6] for 12 industries.

TABLE 5
2003 Production account results

	Production (basic price)			Intermediate consumption (purchaser price)			Value added					
	AEc	Bc	AEc Bc (1)	AEc	Bc	AEc Bc (1)	AEc	Bc	AEc Bc (1)	Incidence (2)	Participation (3) (%)	
	ChP bn	ChP bn	%	ChP bn	ChP bn	%	ChP bn	ChP bn	%		AEc	Bc
Agriculture and forestry	3,727	3,905	4.8	1,739	2,063	18.6	1,988	1,842	- 7.3	- 0.3	4.2	3.9
Capture fishery	1,497	1,389	- 7.2	762	762	0.1	735	627	-14.7	- 0.2	1.5	1.3
Mining	8,135	8,431	3.6	3,717	4,110	10.6	4,418	4,322	- 2.2	- 0.2	9.3	9.1
Manufacturing	21,746	22,847	5.1	13,397	15,273	14.0	8,349	7,574	- 9.3	- 1.5	17.6	16.0
Electricity, gas and water	3,333	3,325	- 0.2	1,787	1,864	4.3	1,546	1,461	- 5.5	- 0.2	3.3	3.1
Construction	7,559	7,267	- 3.9	3,568	3,736	4.7	3,992	3,531	-11.5	- 0.9	8.4	7.4
Wholesale and retail trade, hotels and restaurants	10,219	11,325	10.8	5,479	6,374	16.3	4,739	4,951	4.5	0.5	10.0	10.4
Transportation and communications	9,321	11,022	18.3	5,657	6,311	11.6	3,664	4,711	28.6	2.8	7.7	9.9
Financial intermediation and business services	10,466	12,332	17.8	3,725	4,681	25.7	6,741	7,651	13.5	2.2	14.2	16.0
Owner-occupied dwellings	3,066	3,674	19.8	417	696	67.1	2,649	2,978	12.4	0.8	5.6	6.3
Personal and social services	8,487	8,378	- 1.3	1,982	2,466	24.5	6,506	5,912	- 9.1	- 1.1	13.7	12.4
Public administration	3,596	3,464	- 3.7	1,462	1,250	-14.5	2,134	2,215	3.8	0.2	4.5	4.7
Total	**91,151**	**97,361**	**6.8**	**43,690**	**49,585**	**13.5**	**47,461**	**47,775**	**0.7**	**0.7**	**100.0**	**100.0**

AEc = Annual estimated compilation 2003 base 1996.
Bc = Benchmark compilation 2003 base 2003.
(1) Percentage difference between the benchmark and the annual estimated compilation figures.
(2) industry incidence on the differences between both measures.
(3) industry share in the benchmark measure.

[6]/ Each industry's share of total added value is also presented, to show the incidence of each.

As the table shows, underestimation in the value added of the annual estimated compilation (0.7%) reflects differences, of different signs and magnitude, present in all industries. The main differences in industry measures are explained below.

Transportation and communications

In this industry, the 28.6% difference in value added between the benchmark measure and the annual estimated compilation reflects the transportation activity, specifically transportation of passengers and cargo. In the 2003 estimated compilation, the value of production for associated activities was underestimated for lack of an appropriate quantification of the universe to be measured, while in passenger transportation production for collective taxis was undervalued. Similarly, for cargo service measures improved, thanks to more complete information gathered by an external study of this industry.

The difference for the communications industry partly reflects the incorporation of intermediate services and data transmission, which have gained importance since the 1996 matrix, and were not fully captured by the annual estimated compilation. Moreover, an increase in the sources available made it possible to improve understanding of this industry's productive structure, thereby increasing the value added coefficient for production.

Financial intermediation and business services

The 13.5% underestimation in the annual estimated compilation reflects coverage problems affecting business service measures. For this industry, the annual estimated compilation did not have data on the annual change in production sufficient to capture the growing strength of this type of services. In contrast, the benchmark method had better information sources, a better breakdown and more detail on industries to more accurately estimate production and costs.

Manufacturing

The underestimation of production and intermediate consumption in the annual estimated compilation produced a 9.3% overestimation of value added in this industry. Given that both measures use different sources and methods, the overestimation of value added in the annual estimated compilation mainly reflected the growing expense of the main inputs compared to prices for the industry´s main products. This was apparent, for example, in the higher price of the input oil. Moreover, organizational changes were also identified that upgraded production functions in some manufacturing activities. This was the case of the large holding companies, which have firms specializing in different stages of the productive process, including distribution and marketing. This involves service transactions among different companies within the same holding company, which in turn boosts manufacturing establishments' intermediate consumption, a situation that is not captured by the annual estimated compilation measures.

Personal and social services

The 9.1% overestimation in added-value for this industry mainly reflected problems in measuring the private health activity. Benchmark compilation provides information on income necessary to identify the universe of independent health care professionals, thus generating a lower output compared to annual estimated compilation. Meanwhile, the underestimation of intermediate consumption by annual estimated compilation reflected reclassification of physicians' honoraria, which were treated as wages, whereas in the benchmark compilation these are entered as intermediate consumption, because they involve the provision of professional services.

Construction

The annual estimated compilation posted an 11.5% overestimation for this industry's value added, reflecting the use of overestimations in prices for built products. Similarly, benchmark compilation for intermediate consumption was higher than those for annual estimated compilation, reflecting the redefinition of added-value items as intermediate consumption. This was the case with engineering studies and wages associated with services involving rental of machinery and equipment. The annual estimated compilation measure included both services within the construction industry, whereas the benchmark compilation identified these as the purchase of services from other industries.

Owner-occupied dwellings

The 12.4% increase in value added reflects an underestimation in the annual estimated compilation, apparent in the valuation of both production and intermediate consumption. In the former case, the difference reflects an update to the value of housing stock, which pushed the value of rentals up. Meanwhile, the higher level of intermediate consumption reflects a change in home repair values, calculated within construction.

Capture fishery

The 14.7% overestimation in value added reflects an overvaluation of the changes in prices used within production, which was not fully reflected into actual transaction prices. For the benchmark year, additional price sources were available, which improved output measures for the different species involved in both offshore and industrial capture fishery.

Other industries

In the case of other industries, differences reflect changes in methods and/or sources, which can be summarized as:

- Agriculture and forestry: incorporation of an estimate for the natural growth of forestry and fruit plantations.
- Mining: secondary industries involving fuel refinery were removed from mining and classified under manufacturing.
- Electricity, gas and water: the gas industry included only distribution margins within distribution.
- Wholesale and retail trade, hotels and restaurants: data for restaurants and hotels was improved using tax statistics.
- Public administration: in-kind transfers were included under government final consumption and not intermediate consumption.

5.2. Expenditure approach

The difference (0.4%) in GDP using the expenditure approach mainly reflected shifts in household consumption and gross fixed capital formation, as shown in table 6.

TABLE 6
2003 GDP, expenditure approach results

Expenditure	AEc	Bc	Difference (1)	Incidence (2)	Participation (3) (%)	
	ChP bn	ChP bn	%		AEc	Bc
Private final consumption	31,341,204	32,109,201	2.5	1.5	61.5	62.8
Government consumption	6,313,865	6,146,218	-2.7	-0.3	12.4	12.0
Gross fixed capital formation	10,769,329	10,307,001	-4.3	-0.9	21.1	20.1
Inventory change	414,409	490,447	18.3	0.1	0.8	1.0
Exports f.o.b.	18,665,008	18,684,506	0.1	0.0	36.6	36.5
Minus: imports c.i.f.	16,549,426	16,580,959	0.2	0.1	32.5	32.4
GDP	50,954,389	51,156,415	0.4	0.4	100.0	100.0

AEc = Annual estimated compilation. 2003 base year 1996.
Bc = Benchmark compilation. 2003 base year 2003.
(1) Percentage difference between the benchmark and the annual estimated compilation.
(2) This item's incidence in the difference between both measures.
(3) This item's share within the benchmark measure.

Final consumption of households rose by 2.5%, the result of an increase in consumption of owner-occupied dwelling services, transportation and communications, and manufactured products, a decline in business and financial services, agricultural, forestry and fishery products.

Gross fixed capital formation fell 4.3%, dragged down by less investment in machinery and equipment, mainly caused by reclassification of some goods previously considered capital goods as consumption goods. Construction investment also declined, reflecting a correction to building prices. Thus, the investment rate reached 20.1% of GDP in the benchmark compilation, down from 21.1% in the annual estimated compilation.

5.3. Income approach

The increase in GDP on the productive factor income side mainly reflects higher wages when estimated using the benchmark measure, which had better information sources for this variable, particularly in-depth use of tax data (table 7).

In the case of taxes, these are lower reflecting mainly a review of VAT revenues, given a change in the accounting treatment that affected companies with infrastructure concessions, away from gross to net accounting.

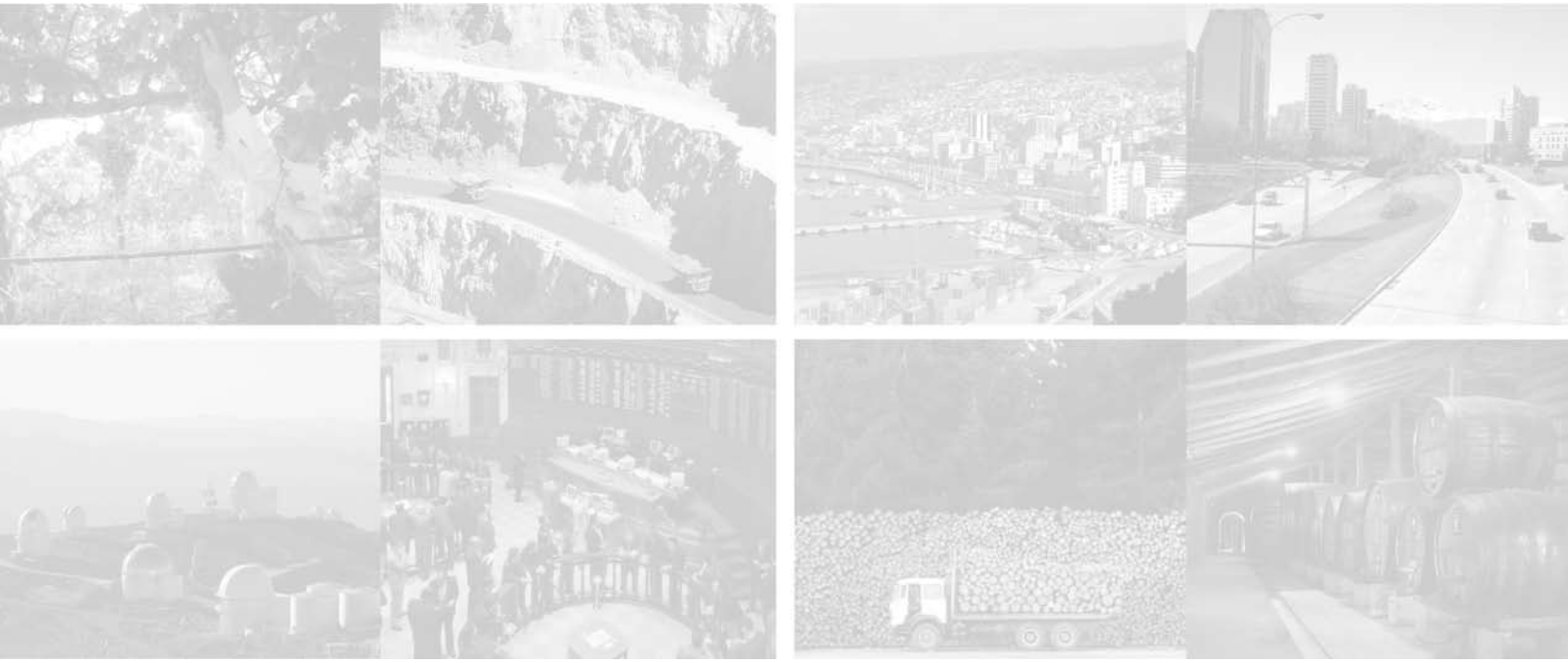
Finally, the decline in surplus reflected better measures for other variables, since these reflect residual estimates.

TABLE 7
2003 GDP income approach results

Income	AEc	Bc	Difference (1)	Incidence (2)	Participation (3) (%)	
	ChP bn	ChP bn	%		AEc	Bc
Wages	20,072,245	21,100,769	5.1	2.0	39.4	41.2
Taxes	6,279,520	6,162,796	-1.9	-0.2	12.3	12.0
Gross surplus	24,602,620	23,892,850	-2.9	-1.4	48.3	46.7
GDP	**50,954,395**	**51,156,415**	**0.4**	**0.4**	**100.0**	**100.0**

AEc = Annual estimated compilation, 2003 base year 1996.
Bc = Benchmark compilation, 2003 base year 2003.
(1) Percentage different between the benchmark and the annual estimated compilation measure.
(2) This item's incidence on the difference between the two measures.
(3) This item's share in the benchmark measure.

1. Benchmark compilation



1.1. The national accounts compilation cycle

National accounts aggregates such as Gross Domestic Product (GDP), consumption, investment and saving, are obtained through a compilation process that forms part of the accounting framework within the System of National Accounts 1993 (SNA93).[1] This process turns statistical and accounting microdata into national accounts aggregates, in the following stages: collection, entry, transfer, validation, classification, imputation, aggregation and balancing.

The national accounts compilation process is done for periods that could be referred to as compilation cycles. Each starts with benchmark compilation[2], which establishes national accounts levels for the first year of the cycle and determines sources, methods and prices that will be used throughout. The rest of the estimates in the cycle are obtained using the annual and quarterly estimated compilations.

Benchmark compilation provides the ""best-levels" estimates of macroeconomic aggregates for the new benchmark year (Stanley-Allen *et al.*, 2005). In fact, this version is based on data collected in more detail and considering best practices based on current international recommendations. This involves an enormous investment of time and resources, since special statistical operations are required to bring together more disaggregated and higher quality information, which in turn require special training in both statistical and accounting methods. Thus, benchmark accounts are less frequent.

Annual estimates prepared for the follow-up compilations provide national accounts data for the periods between one benchmark compilation and the next. Their calculation is based on the cost and price structure implicit in the previous benchmark compilation. Thus, the estimated compilation reflects the "best-changes" estimates from the previous benchmark process (Stanley - Allen *et al.*, 2005). These may be annual, quarterly or monthly.[3]

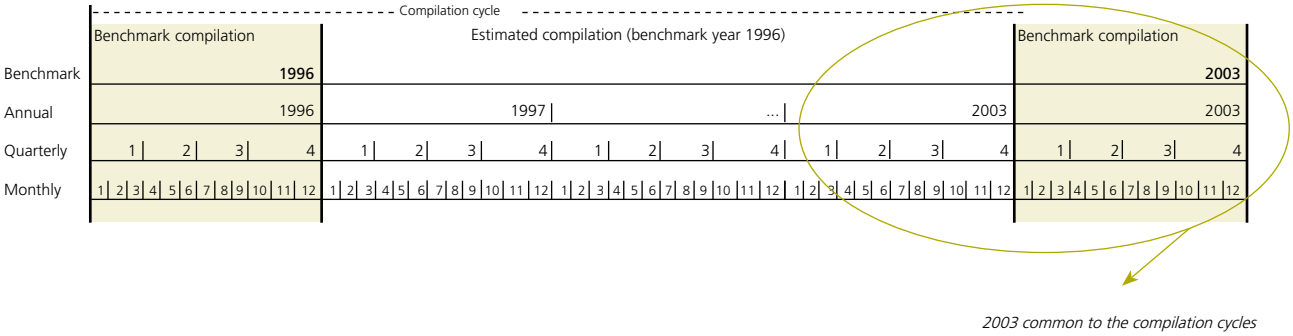
Chile's national accounts compilation cycle distinguishes different frequencies: benchmark compilation and annual, quarterly and monthly estimated or follow-up compilation. Annual and quarterly estimations for current and constant prices, while the monthly frequency uses an index for constant prices. Table 1.1 presents the time relationships present in these compilations, using the benchmark compilation cycle for 1996 as an example, along with the one that will begin with the 2003 benchmark compilation.

[1]/ The SNA establishes international recommendations for compiling countries' national accounts statistics. Since it started in 1953, the SNA has been revised four times, most recently in 1993. Thus the SNA93 contains the guidelines currently in effect for Chile's national accounts.

[2]/ Benchmark compilation according to the United Nations' Statistics Department, frame of reference according to IMF's Statistics Department, benchmark I-O accounts, in the case of the US Bureau of Economic Analysis (BEA), or reference year according to some national accounts offices.

[3]/ Given that for lack of monthly data national accounts cannot be estimated for this frecuency, therefore, monthly follow-up involve estimating indicators that do not incorporate the complete structure of national accounts.

TABLE 1.1
Chile's compilation cycles, 1996, 2003



1996 benchmark compilation gave rise to a cycle of annual, quarterly and monthly measures, which will become obsolete with the new benchmark compilation presented in this publication. The year 2003 is common to the old and new cycles.

In each cycle there is a functional dependency among the compilations for the different time periods: the most frequent depend on the results from the least frequent. Table 1.2 illustrates this dependency. Table columns represent the method used to prepare each set of data based on three dimensions: methods, use of actual data and estimates. The methods for preparing the benchmark compilation are used on the next yearly and quarterly compilations. For example, the 2003 benchmark compilation saw the introduction of a method for estimating the national growth of forests to define forestry inventory changes. This method will influence follow-up compilations, represented in the first row of table 1.2.

TABLE 1.2
TABLE 1.2 Compilation cycle sources and methods

Compilation type			
Benchmark	AnNual	Quarterly	Monthly
Benchmark methods Maximum information available	Benchmark methods Benchmark parameters	Benchmark methods Benchmark parameters	Benchmark methods Benchmark parameters
	Annual methods Less information than for benchmark compilation Annual parameters	Annual methods Annual parameters	Annual methods Annual parameters
		Quarterly methods Less information than for benchmark compilation Quarterly parameters	Quarterly methods Quarterly parameters
			Monthly methods Foreign trade and production indicators Monthly parameters

To elaborate the benchmark compilation actual data is used as much as possible, reducing estimates to the minimum. For example, for wholesale and retail trade margins, a complete study of imported and domestic product margins is carried out, based on measures by type of commercial activity and product. This yields actual data. Nonetheless, even the benchmark does not have data on margins paid by each industry, requiring the use of assumptions regarding the distribution of wholesale and retail trade margins, compared to consumption or use volumes and coefficients for wholesale and retail trade margins.

Actual data declines as the frequency of the estimated compilations rises. To supplement the lack of actual data, estimates are based on methods and parameters derived from the next shortest time period, as shown in table 1.2. The most common approach is to assume that fixed relations established in the most reliable compilations hold for the interim periods. One common assumption for annual estimated compilations for some industries is "constant productivity" (Central Bank of Chile, 2005), which sets the relationship between value added and production using the benchmark compilation.

The method applied to measure the estimated compilation uses information from the benchmark compilation, procedures intrinsic to annual measures (for example, annual follow-up of prices and quantities), index formulae, and balancing adjustments. Moreover, the annual estimated compilation involves parameters that change from year to year, such as the ratio of crop yields to area planted. Thus, the production function for the estimated compilation uses benchmark compilation that is vital to complete annual measures.

This relation of dependence between the yearly estimated compilation and the benchmark compilation also applies to the quarterly and monthly estimates. As there is less and less hard data available, estimates depend on annual estimated parameters and methods and parameters used to generate quarterly and monthly data. For example, balancing supply and use series, and benchmarking techniques are used to harmonize annual account aggregates and quarterly indicators.

Finally, to compile the Monthly Economic Activity Indicator (*Indicador Mensual de Actividad Económica, Imacec*) the least amount of actual data is available: only production, goods and some service imports and exports, which are combined with a greater accumulation of methods and quarterly, annual, and benchmark parameters.

1.2. The purpose of benchmark compilation

1.2.1. Main purpose: to revise national accounts

The explanation provided above points to the fact that the main purpose of the benchmark compilation is to revise the "best-levels" of the different national accounts aggregates. This revision is done for the year for which an annual estimated compilation of the previous compilation cycle is available.

In general terms, the discrepancy between the *levels* of the benchmark observations and the *levels* of the estimated observations by the follow-up compilation, is the result of improving information sources and methods used to prepare the new benchmark compared to the previous one. Source improvement essentially refers to using better quality information, greater coverage and greater depth, among other factors, all of which leads to changes in prices, quantities and values. Improvement to methods, meanwhile, typically involves changes in the processes used to compile and balance data and the incorporation of new concepts and changes in the classification of products, industries and institutional agents, in line with new international recommendations.[4]

[4]/ An international group of national accounts experts actively exchange opinions on methods. To ensure that national accounts are comparable among countries, an international body composed of the Inter-Secretariat Working Group on National Accounts (ISWGNA) exists, which includes the United Nations Statistics Division, the International Monetary Fund's Statistics Department, and specialized World Bank units. There recommendations are contained in the SNA93, scheduled for a first review in 2008.

1.2.2. Secondary objectives: base prices and structural analysis

Aside from the main purpose of revision, benchmark compilation is also designed to establish the base period for measuring constant prices and preparing the input-output matrix (IOM), for exploring the economy's structural properties. These are considered secondary objectives, since they can also be prepared without a benchmark compilation.

a) Base period of prices

In order to have constant price measures, a base period of prices is necessary whether fixed or moving. Thus, measures for the supply and use of goods and services from benchmark compilation provide "weighting baskets" for comparing macroeconomic aggregates across time using constant prices.

Measures using constant prices require extrapolation, based on quantitative indices or deflation, using price indices. Typically three types of index are involved: Laspeyres, Paasche and Fisher. In practice, most national accounts use Laspeyres. In this formula, to measure the value of a variable such as production or consumption, the quantities for each year are weighted according to the prices in the base period. In a Paasche index, these are weighted using prices for the current year. The Fisher index combines two previous indices to use the geometric average. For the fixed base period of prices either of these indices is used directly to obtain real changes for an item from one period to another, while a moving base is used to chain-link index values for each period.[5]

Clearly no benchmark compilation is necessary to establish measures at constant prices whether on a fixed or moving basis, since each year's national accounts can serve this purpose. However, given that benchmark observations offer a more accurate reflection of the state of the economy at any given time, relative prices from the benchmark year are considered useful for measures in real terms.

b) Input-output matrix

Benchmark compilation is necessary to prepare the IOM. This makes it possible to examine the structural properties of the economy for the benchmark year, since it reflects the conditions affecting macroeconomic aggregates at that time, with maximum precision. Although annual estimated compilations can also reveal relationships between relevant variables and structural changes, this is only in aggregate terms, and does not provide the precision of a benchmark compilation. While for the benchmark year relationships such as that between intermediate consumption and production can be determined by industry and product (that is, by product for each industry, and by industry for each product) the composition of the variables in the yearly estimated compilation are made only for totals by industry and by product.

1.3. Benchmark compilation and consistency in national accounts

National accounts estimates are vulnerable to internal and temporal inconsistencies (Carson, 2000).

Internal inconsistency,[6] present in both benchmark and estimated compilation accounts, arises because microdata for a single entry may come from different sources, with different levels of robustness and timeliness. When these data are organized within a framework of accounting identities statistical and accounting imbalance sheets appear that must be reconciled or balanced.

Temporal inconsistencies in time series arise within different compilation cycles because of differences between the better qualities of benchmark compilation compared to estimated compilation. This inconsistency may stem from sample or non-sample source differences, or methods used in the different compilations.

[5]/ Moving base period prices are used in most OECD countries.

[6]/ And by extension, intersectoral consistency, a concept applied to the differences in a single entry appearing in different data sets (IMF, 2000). For example, national accounts external saving compared to the deficit in the balance of payments current account.

To achieve consistency in both cases, different methods are used. To reestablish internal consistency, systems or mathematical and statistical approaches are used. The former are used by national accounts offices to balance benchmark and annual or quarterly estimated compilations. The additional formality of this option should make it easier to incorporate automatic solutions in the context of manual methods.[7] The latter, in practice, tend to be applied in processes for recovering temporal consistency.[8]

To recover temporal consistency between two compilation cycles, it is necessary to remake the first cycle of compilation using the base of prices (linking or rebasing) and the information base (backward calculation) of the second cycle of compilation.

To link or rebase, given the base of prices in the most recent compilation cycle, requires re-escalation or splicing (*empalme*), or some other technique, such as interpolation. The use of moving bases in national accounts makes linking unnecessary. Splicing only requires benchmark compilation for the first observation of the series; interpolation involves data for at least two benchmarks compilations.

The other operation involves updating the information base, sources and methods (backcasting or backward calculation) between two cycles and then rebalancing them on an annual basis.[9] The US Bureau of Economic Analysis (BEA) considers this a *comprehensive review*. Best practices recommend updating benchmark compilations only and then to interpolate between them to the best level of desegregation. Because recovering temporal consistency introduces statistical and accounting imbalances, a year-by-year balancing is also necessary.

Table 1.3 summarizes the types of inconsistency and ways of offsetting them.

TABLE 1.3.
Benchmark compilation and consistency in national accounts

Consistency	Internal (benchmark or estimated compilation)	Temporal (between cycles)
Loss of consistency	Statistical-accounting imbalance due to subsets of statistics that have not been brought into line with the rest of the national information system	Discrepancies for each variable between the benchmark and estimated compilation amounts, reflecting different sources and methods
Recovery of consistency	Balancing -Manual -Automatic (restricted generalized least squares, RAS, and entropy methods)	Backcasting, backward calculation

Appendices 1.1 and 1.2 offer a numeric example for temporal inconsistency and measure inconsistency, respectively.

1.4. Summary of benchmark data compiled in Chile

Chile has carried out five benchmark compilations, for the years 1962, 1977, 1986, 1996 and this one, for 2003. These have become increasingly frequent, with the time between each falling from 15 to seven years, as part of strengthening the national accounts revision policy to ensure the accuracy of economic records and meet standards for best practices when it comes to the quality of statistics.

[7]/ This is the case in data base platforms using a comprehensive national accounts model for balancing.

[8]/ For example, Italy's 1970-1979 accounts (Giovannini, 1988).

[9]/ This process is carried out for Italy's national accounts using mathematical and statistical optimization (Giovannini, 1988).

Chile's benchmark compilations generally involve the following basics: the reference accounting framework; the version of the International Standard Industrial Classification (ISIC), for economic industries; the level of desegregation of products and industries and valuation employed; an analysis of the inconsistencies therein; balancing methods used; base period used for estimates at constant prices; and the transversal industries and studies included. Table 1.4 provides information on benchmark compilations with the parallel reference.

TABLE 1.4
Basic of Chile's benchmark compilations

	Benchmark year				
	1962	1977	1986	1996	2003
SNA guide lines	1953	1968	1968/1993	1993	1993
Economic classification used	ISIC Rev.1	ISIC Rev.2	ISIC Rev.2	ISIC Rev.3	ISIC Rev.3
Product / industry item	54	68	75	73	73
Base period of prices	fixed	fixed	fixed	fixed	fixed
Balancing tool	IOM	IOM	SUT	SUT	SUT
Discrepancy analysis	-	internal use	internal use	published	published
Valuation, prices	purchaser	purchaser	purchaser	purchaser	purchaser
			producer	producer	producer
			basic	basic	basic
Public administration	final demand	industry/ final demand	industry/ final demand	industry/ final demand	industry/ final demand
Imputations	-	x	x	x	x
Investment table	-	-	x	x	x
Integrated economic accounts	-	-	-	x	x

As table 1.4 shows, the first benchmark compilation (1962) was based on the international recommendations of the period, contained in the 1953 SNA, and ISIC (rev.1). Results were presented for 54 industries and valued at purchaser prices. Base period used a fixed base year (1965) to measure at constant prices, and this criterion was used in the benchmark compilations that followed, including those for 2003. Balancing was achieved through the input-output matrix, which presented production and intermediate consumption by industry and product. This approach was used in the next benchmark too.

Benchmark compilation for 1977 was based on the 1968 SNA recommendations. It used ISIC (rev.2) again to classify 1986 benchmark industries. Coverage expanded to include 68 industries, all valued at purchaser prices, as they had been in the 1962 benchmark. For the 1977 benchmark, a discrepancy analysis was added for internal use, temporal discrepancy for internal use, which the Bank began to publish with the 1996 benchmark. Imputations were added under nominal industries and the government included as a producing industry (as well as final user).

For 1986 benchmark compilation, the conceptual framework reflected mainly the 1993 SNA, which provided drafts or preliminary versions. The most significant methodological changes involved the treatment of value added tax (VAT) and secondary production. On this occasion and for the first time figures distinguished between industry and product. Thus, the results covered 75 products and industries, with coverage increasing significantly over the previous benchmark. Similarly, basic prices and producer prices were used, and were later applied in the 1996 and 2003 benchmarks. In the 1986 benchmark, balancing took place through supply-use tables (SUT), which explicitly included secondary production and spending on goods and services independently of industries. Moreover, for the first time an investment matrix by destination industry (product/industry) was also used

1996 benchmark compilation used the SNA93 and ISIC (rev. 3). For the first time, Chile prepared an integrated System of National Accounts. Thus, the 1996 benchmark included production, income, expenditure and accumulation accounts, by industry and institutional sector. The results covered 73 industries.

The 2003 benchmark shares the characteristics of the 1996 benchmark. As in previous versions, it involved updating information sources used in the previous benchmark, and included advances in compilation methods. For the data compiled to represent the 2003 structure, in terms of the behavior of economic agents, markets and production structures, all information recorded less often than a year was included. Thus, the 2002 population census and the agriculture census were used; annual structural surveys were used in more detail, particularly manufacturing, wholesale and retail trade and services; new information sources were added and information was developed that is typically not captured within domestic statistics, such as wholesale and retail trade margins, transportation, communications and small business.

BOX 1.1

Some aspects of benchmark compilation in Latin American countries

In general terms, the countries of Latin America carry out benchmark and estimated compilation, applying the basic principles that these involve. Thus, to prepare their respective benchmark compilations, most gather an enormous amount of information, which contrasts with the way estimated compilation data is compiled. Similarly, for the estimated measures, countries extrapolate using benchmark observations through volume indicators and apply the relationships observed to estimate value added.

However, the lack of resources to carry out economic censuses and annual surveys makes it impossible for many of this region's countries to carry out reviews every five years, as recommended in SNA93, or even every ten, as suggested by the SNA68. This occurs in a context where many countries are experiencing high inflation, which hurts the quality of national accounts statistics, since these are based on parameters determined through the benchmark compilation, and do not internalize changes in cost structures that arise from changes in relative prices (IMF, 2004).

Table 1.5 presents the state of the base period of prices for the countries of Latin America and the Caribbean. Prepared in 2006, this presents the status of the benchmark year of prices for each country, compared to the present. It also provides the base period in effect for previous years, to see how the lag in benchmark year of prices has evolved in each country. The lag in the base periods is measured by the column, and is equal to the difference between the current year (used for table information) and the benchmark year of prices.

TABLE 1.5
Latin America: Base years of prices

Country	1999	2003	2005	2006	2006(*)
Argentina	1986	1993	1993	1993	
Bolivia	1980	1990	1990	1990	
Brazil	1980	1998	1998	1998	2000
Colombia	1975	1994	1994	1994	2000
Costa Rica	1966	1991	1991	1991	
Chile	1986	1996	1996	1996	2003
Ecuador	1975	2000	2000	2000	
El Salvador	1990	1990	1990	1990	
Guatemala	1958	1958	1958	1958	2001
Honduras	1978	1978	1978	1978	2000
Mexico	1993	1993	1993	1993	2003
Nicaragua	1980	1980	1980	1994	
Panama	1982	1996	1996	1996	
Paraguay	1982	1982	1982	1996	
Peru	1979	1994	1994	1994	
Dominican Republic	1970	1970	1970	1970	1991
Uruguay	1983	1983	1983	1983	1997
Venezuela	1984	1984	1997	1997	

Sources: May 1999, World Bank.
September 2003 to 2006, International Monetary Fund.
(*) Direct information through October 2006, covering the cases of base period of prices being calculated (for example, Mexico), completed (as in the cases of Chile and Guatemala) and national accounts, used in the new benchmark compilation (Dominican Republic).

In Chile's case, the benchmark year of prices in effect in 1999 was 1986, whereas in 2003, it was 1996, which remained the benchmark year for 2005 and 2006 (the information in the last column was gathered by the IMF in September, prior to publication of the new 2003 benchmark year). Therefore it can be concluded that in 1999 Chile's base period was affected by a 13-year lag. By 2003, the lag was seven years, which rose to nine in 2005. For all the countries included in the table, the average lag has fallen from 19.7 in 1999 to 16.5 years today, and assuming that national accounts will use new base period in a couple of more years, this average should fall from today's 16.5 to 11.6 years in 2008.

On the lag in the information base throughout the region, this is at least similar to that for base period of prices, although probably more. In developed countries, the lag in the base period of prices ranges from one to eight years, while the lag in the information base is from two to eight years.

Appendix 1.1

Analysis of temporal consistency. An example

Table 1.6 presents a hypothetical situation for gross output and value added variables for any industry at three points in time. There is a benchmark compilation for the first and last periods. The inconsistency analysis refers to benchmark t and estimated compilation for series t as t+2. Three possible values can therefore be defined.

- The true level of the variables, which is unknown given the nature of national accounts data.
- The benchmark level, which is the result of the respective compilation process. This is the best level or that which most closely approximates the true data, since it is the product of the most complete compilation for any given periods.
- The estimated compilation level, which is designed as the best estimate compared to the benchmark. Given that the estimated compilation is prepared using less information, there is no way that it can yield more accurate results that the benchmark. In this sense, the purpose of the estimated compilation is to achieve the best variation.

As this exercise reveals, the true level (row a) differs from the benchmark (row b), which causes the first temporal inconsistency in the series. This inconsistency is unknown and its estimation impossible. The estimated compilation (row c) values are calculated using the benchmark value for the period, given that the rates of change for each period constitute the "best change". However, this does not coincide with the true rate of change (row d) either, since this is unknown for national accounts practice. The difference between the "best change" (row e) and the true change causes the second temporal inconsistency, which will end up being reflected in the data for t+2 when compared to the new benchmark compilation for that year. Inconsistency in both the benchmark and the estimated compilation stems from the source data.

TABLE 1.6
Analysis of temporal inconsistency in national accounts. A numeric example

			Gross output (GO)			Value added (VA)		
			t	*t*+1	*t*+2	*t*	*t*+1	*t*+2
Level	True (true level)	*a*	1,000	1,050	1,124	500	510	520
	Benchmark (best level)	*b*	900		1,100	480		515
	Estimated compilation (best change)	c	900	972	1,069	480	518	570
Rate of change	True	*d*		5.0%	7.0%			
	Estimated compilation	*e*		8.0%	10.0%			
Parameter VA/GO	True	*f*				50.0%	48.6%	46.3%
	Benchmark	*g*				50.0%		46.3%
	Estimated compilation	h				50.0%	50.0%	50.0%
Inconsistencies analysis	Estimated compilation with no source inconsistency	*k* with $\Delta = d$	900	945	1,011	480	504	539
	Estimated compilation with no method inconsistency and with	$l = c * f$				480	472	495
	Analysis of the estimated compilation with no method inconsistency and no source inconsistency	$m = k * f$				480	459	468
	Inconsistency of estimated compilation originating in source	$n = k - c$		-27	-58		-14	-31
	Inconsistency of estimated compilation originating in method	$o = m - l$					-13	-27
	Inconsistency in benchmark originating in source	$p = a - k$	100	105	112	20	19	8
	Reconstruction of true value	$q = c + n + o + p$	1,000	1,050	1,124	500	510	520

The third inconsistency is associated with methods. In this example, it is represented using the ratio of value added to gross output (VA/GO) or "productivity" in terms of national accounts. The relationship consistent with true levels (row f) is also unknown. To simplify the example, we can assume that this relationship is captured in the benchmark compilation (row g). In practice, some differences are likely. In the estimated compilation (row h), the assumption of "constant productivity" forms part of the benchmark compilation. This assumption introduces method-related inconsistency.

Based on this information, rows k to q analyzes inconsistencies. Row k calculates the hypothetical estimated compilation series should the true rates (row d) be known. Rows l and m calculate the hypothetical series of the estimated compilation if the true parameters of VA/GO (row f) were known. Row l is calculated for estimated compilation series (row c) and row m for the series corrected using the true change (row k). These hypothetical series are used to break down temporal inconsistency for the estimated compilation series. Row n presents the inconsistency due to lack of knowledge of the true rates of change, row o the inconsistency for lack of knowledge regarding true productivity parameters, and row p inconsistency due to lack of knowledge about true values. As can be seen, there are two inconsistencies attributable to true data sources and one attributable to method.

Method inconsistency could be interpreted, in the case of the example, as a lack of productivity data. The method may be correct (double deflation instead of constant productivity), which would bring us closer to true value. Nonetheless, applying the double deflation method to national accounts data could just as likely prove unreliable and therefore error could be attributable to sources. The unrestricted application of a correct method will always be affected by insufficient data.

The example has tried to highlight types of inconsistency. To do so, the differences between true, benchmark and estimated compilation data have been exaggerated. In practice, efforts to balance supply and use of goods and services data cross-check many sources, methods and variables, thereby reducing the differences between estimated and true variables.

Appendix 1.2

Bases for measurement. An example

Table 1.7 offers an example to help clarify concepts associated with establishing base of prices and their frequency within national accounts. For this purpose, some data from table 1.6 is used, although with modifications to the numeric data.

We start with two benchmark periods, t and t + 2, which assume two compilation cycles. One major assumption in this exercise is that only one industry and one output is considered. This therefore does not capture changes in exchange prices or the weighting between industries and products. We decided to establish base of prices concepts and frequency in the simplest way possible, sacrificing the effects of changes in the composition and prices between industries and products.

The calculation is based on line a for the benchmark compilation, and lines b to g for the two compilation cycles. The data for changes in price indices (Ip), quantity (Iq) and value (Iv), is all the information available from follow-up benchmark compilation. The set of Ip, Iq and Iv is separated for both compilation cycles because after each benchmark these indicators may change definition, coverage and calculation method. For example, In Chile's case, calculating producer price indicators using 2003 data changed deflators for manufacturing production that were strongly influenced by the wholesale price index.

Lines h to l have incorporated explicit or implicitly parameters that influence the calculation of base of prices. As in table 1.6, is assumed that the value added/production ratio (VA/GO) declines from 50% to 46.3% between both benchmarks (line h). In the estimated compilation it is assumed that this productivity change is unknown, so the VA/GO ratio remains constant in each benchmark compilation (lines i and j). Also, to make the calculation easier it is assumed that the VA/GO ratio is the same in both nominal and real terms, that is, there is no change in price relationships between intermediate and primary inputs making up the value for production. Of course, in reality this assumption is unsustainable. Finally, the information to the parameters is implicit and explained below.

TABLE 1.7
Price base. A numerical example

				Gross output (GO)						Value added (VA)					
				t	t+1	t+2	t+2	t+3	t+4	t	t+1	t+2	t+2	t+3	t+4
Benchmark compilation			*a*	1,000			1,250			480			515		
Cycle t	Change Iq		*b*		6.0%	8.0%									
	Change Ip		*c*		2.0%	3.0%									
	Change Ip*Iq		*d*		8.1%	11.2%									
Cycle t+2	Change Iq		*e*					5.0%	2.0%						
	Change IP		*f*					2.0%	1.0%						
	Change Ip*Iq		*g*					7.1%	3.0%						
Parameters	Benchmark		*h*							50.0%		46.3%			
	Estimated compilation. Base t		*i*							50.0%	50.0%	50.0%	50.0%		
	Estimated compilation. Base t+2		*j*										46.3%	46.3%	46.3%
	Standardization. Parameter		*k*							50.0%	48.0%	46.3%	46.3%	46.3%	46.3%
	Standardization. Ip*Iq		*l*		10.4%	13.2%									
Base year options (rebasing) and moving base	Estimated compilation. Base t	Real	*m* con Δ=b	1,000	1,060	1,145				480	509	550			
		Nominal	*n* con Δ=c	1,000	1,081	1,203				480	519	577			
	Estimated compilation,. Base t+1	Real	*o* con Δ=b	1,020	1,081	1,168				510	541	584			
		Nominal	*p* con Δ=c	1,000	1,081	1,203				500	541	601			
	Estimated compilation. Base t+2	Real	*q* con Δ=b y e	1,051	1,114	1,203		1,263		525	557	601	631		
	(t compilation cycle)	Nominal	*r* con Δ=c y f	1,000	1,081	1,203		1,288		500	541	601	644		
	Estimated compilation, base t+2	Real	*s* con Δ=e				1,250	1,313	1,339				515	541	552
	(t+2 compilation cycle)	Nominal	*t* con D=f				1,250	1,339	1,379				515	552	557
Recovery temporal consistency	Base de precios. *Linking* por	Real	*u* con Δ=b y e	1,092	1,157		1,250	1,313	1,339	450	477		515	541	552
	empalme. Base t+2	Nominal	*v* con Δ=c y f	1,070	1,124		1,250	1,339	1,352	441	463		515	552	557
	Base de información.	Real	*w* =u	1,092	1,157		1,250	1,313	1,339	450	477		515	541	552
	Base t+2 (valores hipotéticos)	Nominal	*x* con Δ=c y f	1,000	1,104		1,250	1,339	1,352	500	510		515	552	557

Lines m to t present the data from the different bases (rebasing) in each cycle. In the usual national accounts operation, with each benchmark compilation (t and t+2 in the example) a new price base is established. Data for base t are presented in lines m and n, and base t+2 in lines s and t. As you can see, in both cases the estimated compilation data are obtained by applying estimated compilation indicators (Ip, Iq and/or Iv) to benchmark compilation. Thus, for example, for period t+1, the data for GO at constant prices (real) results from multiplying the benchmark value 1,000 by Iq=1.06. Similarly, the GO at current prices (nominal) is obtained by multiplying this amount (1,000* 1.06) by Ip=1.02, which is 1,081=(1,000*1.06*1.02). Value added for period t+1 assumes that the VA/GO for benchmark (50%) year t remains the same. This calculation is repeated for t+2 as the estimated compilation data for the benchmark t, and again for the compilation cycle t+2, using the new indices and parameters from benchmark year t+2.

But the new base of prices (the rebase) could also be established using a non-benchmark year. In the example, the base of prices is calculated based on t+1, lines o and p, and in t+2, using lines q and r. Calculations for the years adjacent to both bases are made using the same estimated compilation indices and parameters from benchmark year t, and use the same calculation formulae.

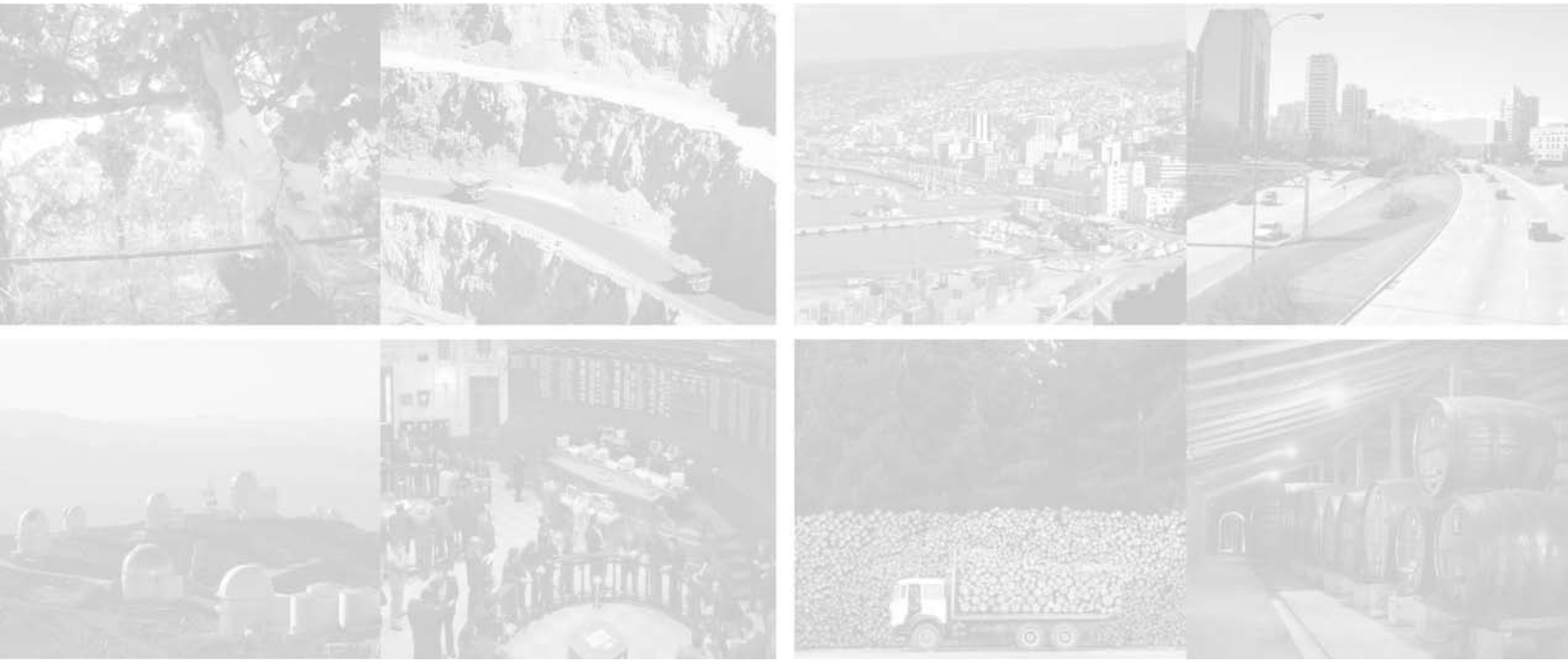
Bases t (lines m,n), t+1 (lines o,p) and t+2 (lines q,r) reveal the development of what would be the moving base method, which would replace a fixed based, whether or not it is based on a benchmark compilation.

But the price bases thus calculated introduce breaks in the national accounts series because of the temporal inconsistency factors described above. To rebuild temporal consistency, operations to build a common base year for two or more compilation cycles are carried out. In the example, this operation is presented in rows u to x.

Given the contents of table 1.3, there are two areas for establishing temporal consistency: price base and information base. When limited to the price issue, this is a linking/rebase operation. To carry out linking a simple splice can be done, or other more or less refined interpolation procedures can be employed. In the example, we used a splice (*empalme*), the result of applying the estimated compilation rates of change for both cycles to a common base period. In this case, the base was defined using benchmark t+2, but it could have been any observation from t to t+4. The splicing operation links the two compilation cycles, but does not resolve temporal inconsistency. This is because, on one hand, it takes the indicators (Iq, Ip, Iv) from both cycles as if there were no differences in their definition, coverage or method; but clearly the main issue is that this fails to take into account the change in the level and parameters from one cycle to the other. Thus, the nominal data for period t (1,070 in line v), differs from that of the benchmark year t (1,000 in lines a, n, p, r). The third aspect is not apparent, due to the simplicity of this example, but the splicing operation is applied separately to each concept, industry and product. When these elements are compared with the identities included in supply tables and use of goods and services, irresolvable differences arise with this splicing method. Therefore, splicing is an analytical and not a systemic method.

This makes a comprehensive review of the information base (*backcasting or backward calculation*) essential, which can incorporate the standardization of concepts, classifications, coverage, methods, and rebalancing of supply and use for the periods for which the series are recalculated. In the example, this operation is simulated in lines w and x. It is assumed that the values posted are the result of applying a complete recalculation method. These results of standardization are summarized in lines k and l. Clearly the rate of change in value index has changed compared to the originals in the base t (line d) compilation cycle. Similarly, the parameter for period t+1 (line k) modifies the estimated compilation value for t (line i). The changes to both the value index and the parameter are inevitable to restore the series' temporal consistency between the two cycles. In practice, and as is logical, this restoration also requires changing Iq and/or Ip for the data in the benchmark year t cycle.

2. Supply-use tables



2.1. Conceptual aspects of the supply-use table

2.1.1. Definition

Benchmark compilation (Bc) is constructed using supply-use tables (SUT) and institutional accounts. The fundamental purpose of SUTs is to organize supply and use information by industry and product, and ensure that national accounts balance. To do so, two identities are incorporated: in the first, the sum of supply by product is equal to the sum of demand (row identity), while in the second production for each industry reflects the sum of its costs (column identity, table 2.1). Meanwhile, the integrated economic accounts add other identities: for each institutional sector, the sum of their incomes equals the sum of their expenditures, and the sum of uses (applications) of non-financial and financial funds equals the sum of the sources (resources) of non-financial and financial funds. Altogether, these identities ensure accounting balances among and between goods and service and financial markets.

In practice, SUTs make it possible to determine the observed GDP in the benchmark compilation, and are the basic instrument for estimating quarterly and annual national accounts, and the constant price records when the base of prices is fixed. This table includes the variables necessary to estimate GDP by origin, expenditure and income.

2.1.2. Supply-use table components

Two sets of tables are included in the supply-use table (Rainer, 2000): a transaction and a valuation set of tables (table 2.1).

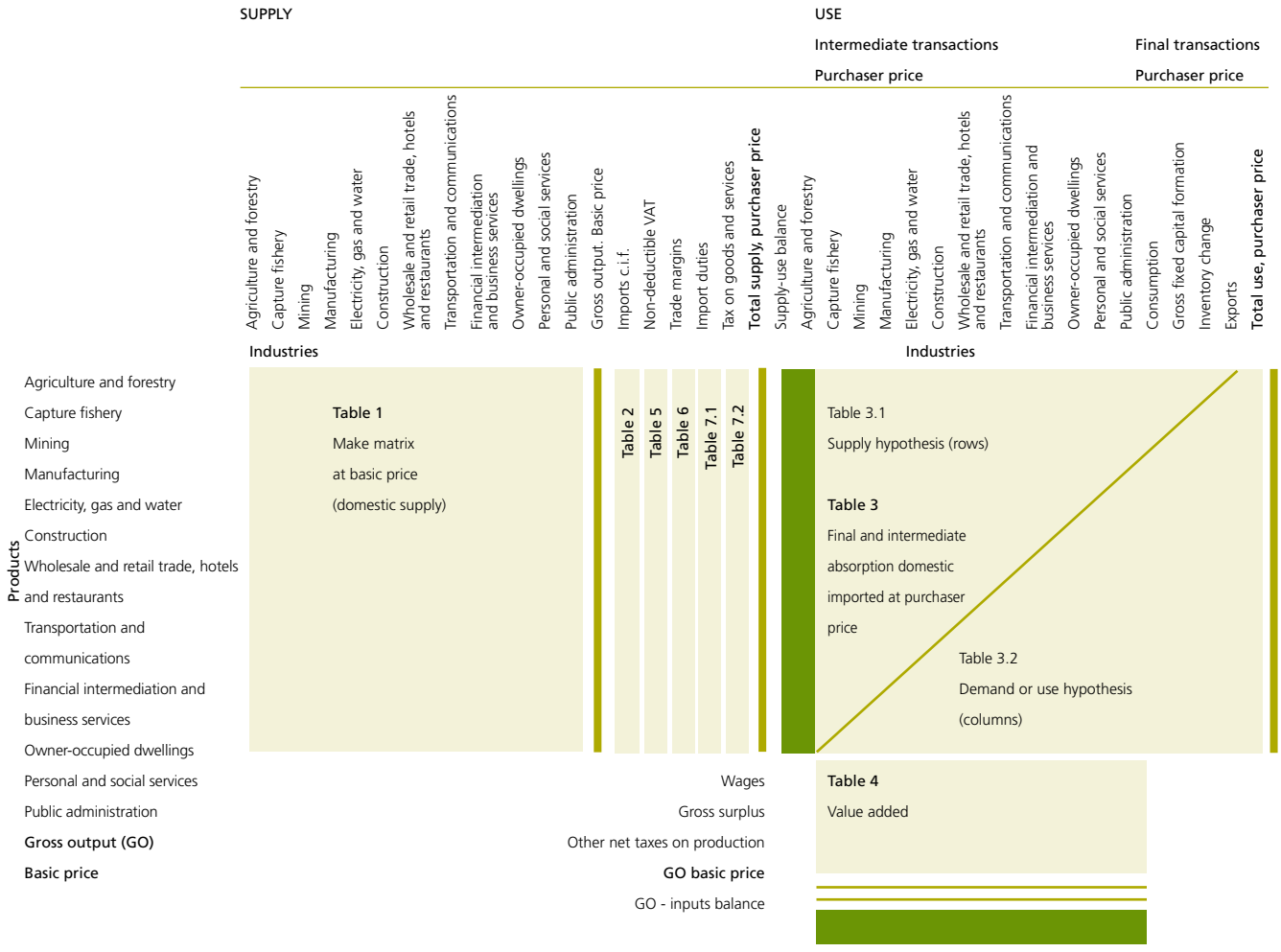
Transaction tables are: domestic supply valued at basic prices[1] (table 1), goods and service imports at c.i.f. prices (table 2), domestic and imported intermediate and final uses or absorption, at purchaser prices (table 3) and the value added table by industry (table 4). Meanwhile, the valuation tables are: non-deductible VAT (table 5), wholesale and retail trade margins (table 6), import duties (table 7.1) and, finally, the table containing taxes on goods and services (table 7.2).

Information sources used to prepare both kinds of tables include industry and cross-industry studies.[2] Some are based solely on one source, while others use both. For example, table 1 (domestic supply) is normally constructed using only data from industrial studies, while in general valuation tables use information from cross-industry studies, as occurred with table 5 (non-deductible VAT). Nonetheless, some transaction tables are constructed using information from both sources, as occurred with table 3 (associated with final absorption) and table 4 (value added).

[1]/ National accounts distinguish between three kinds of valuation for a single good: i) basic price, equal to the producer price minus taxes, equal to the price charged at the property in agriculture or the price at factory gate in manufacturing; ii) the producer price, which is the basic price plus taxes, net subsidies to products; and iii) the purchaser price, which is the market price for goods and services, that is, the value at the point where these are delivered to the buyer or the producer price plus margins on product distribution.

[2]/ Sectoral studies are associated with specific economic sectors, while intersectoral studies refer to cross-sector studies covering different sectors and variables.

TABLE 2.1
Supply-use table components



Each of the tables going into the supply-use table will now be described.

2.1.2.1. Supply tables

There are two tables: domestic and imported supply. Together they account for total supply within the economy at basic price. The domestic supply table contains the universe of products produced domestically (or make matrix) and the percentage share of each industry in the total output of each good or service. This table is mainly diagonal because industries produce characteristic goods: elements outside the diagonal reflect secondary production. Imported supply, at c.i.f. prices, reflects this supply by product type (goods and services).

Valuation tables associated with supply are: non-deductible VAT, wholesale and retail trade margins, import duties and taxes on goods and services. The first reflects the VAT on products required by exempted industries and final household consumption. Wholesale and retail trade margin tables are included in product rows, and in the industry columns, and difference between the margins applied to domestic and imported products. The import tariff table

reflects customs duties affecting imported goods. Finally, the table for taxes on goods and services presents the actual amount of taxes on fuels and tobacco, collected by the government.

The value of total supply at the purchaser price is obtained by adding to the basic price table the values implicit in the non-deductible VAT, wholesale and retail trade margin, import tariff and tax on goods and services tables

2.1.2.2. Use tables

Use tables reflect transactions and are absorption (intermediate and final) and value added tables. On absorption, the intermediate use table (or use matrix) registers the purchase of non-durable goods and services consumed by production in different industries, while the final absorption table refers to the use registered as consumption, gross fixed capital formation (GFCF), inventory change and exports. In both cases, these uses may be domestic or imported. The value added table contains the income from productive factors in each industry.

For lack of direct data, absorption or use tables are prepared using hypotheses regarding the destination of supply (from the perspective of producers and importers) and demand or use (from the perspective or demanders or users). Supply and use hypotheses give rise to tables 3.1 and 3.2, respectively, included in table 2.1.

The supply hypothesis table establishes the destination of domestic and imported supply at the product level using the basic price. In the case of the former, assumptions about final and intermediate absorption are established. In imported supply, aggregate information from Chile's Customs Service is used to determine the components of use and commercialization. The use hypothesis covers both intermediate and final use at final purchaser price. This last involves assumptions for the variables: household consumption, gross fixed capital formation, inventory change and exports. Although preparation of both kinds of table is not done everywhere, the practice is widespread, since it makes it easier to capture data by consulting single agents about how much they produce and how much they purchase.

Finally, to prepare the supply-use tables that make up the SUT, in practice census (covering all industries and/or products) or sample (for strata or part of industries or products) data form the basis of the three estimation methods used: the product-census method, the industry-census method and the sample approach.

The product-census method consists of estimating the total by product (total row) for the whole universe, while the industry-census method uses the total by industry at the same scale. In the former case, total supply is known, while in the latter's case data is available for the universe of production establishments, directly from surveys and/or financial statements from all companies. In the sample approach, information is only available for some productive units, so this approach involves determining product-industry records using an industry sample, which is then applied to the whole universe using tax and cross-industry studies.

In assembling the SUT, supply-use discrepancies become clear (that is, differences between the sum of supply and demand for each product), along with production-costs (differences between production and the sum of intermediate and primary inputs). These are presented in table 2.1, which establishes the balance or imbalance between supply and use (column vector), and between production and inputs (row vector).

To eliminate these accounting discrepancies and ensure consistency across the table (defined in point 1.3 of chapter 1), SUT must be balanced.

2.1.3. SUT Balancing

Balancing corrects cross-table inconsistencies that result from combining different tables in the SUT, through the use of this instrument's own identities.

2.1.3.1. Balancing methods

Balancing approaches essentially use either a systems or an optimization strategy.

In the systems approach (UN, 1998), based on the System of National Accounts 1993 (SNA93), internal consistency is achieved through an iterative process. First, intermediate data for different industries is aggregated and converted to the national accounts format. At this stage, and given the different sources and methods used to collect data, statistical discrepancies are expected (affecting both supply-uses and production-costs). If these arise, the process goes on to analyze these inconsistencies and define their origin. They may arise from missing data, classification errors, insufficient coverage, or other problems. Similarly, this analysis may require correcting intermediate data for the respective industries, which will vary depending on the quality and coverage of statistics used. This corrected data then goes back into balancing. This process ends when no more discrepancies are noted and the SUTs are consistent internally.

The analytical techniques associated with optimization are more formal than the systems approach. By analyzing the past performance of the main variables of the SUT, these techniques examine the supply-use balance from a statistical perspective.

Optimization techniques have been developed over more than 70 years (Stone *et al.*, 1942), but only recently have come into use to balance SUT simultaneously with valuations (Dalgaard and Gysting, 2002). The main optimization methods involve variations of restricted generalized least squares, from classic econometrics, and entropy methods, based on information theory principles (Schneider and Zenios, 1990).[3]

As in the systems approach, optimization applies deterministic accounting constraints or identities that make it easier to recover internal consistency by comparing the supply and use hypotheses, and an analysis of the quality and coverage of each entry is also done.

2.1.3.2. Balancing in benchmark and estimated compilation years

While this balancing process is general, some differences can be noted between decisions made for a benchmark or estimated compilation period, which essentially reflects the nature of the information available.

One fundamental difference between the information available for benchmark versus estimated compilation tables is the level of desegregation of both supply and use data. This means that the quality and coverage[4] of benchmark information outperforms that of estimated compilation and as a result also nourishes a richer analysis.

Similarly, inconsistency across the table in the case of benchmark and estimated compilation periods also differs, so balancing decisions are different in each case. For the benchmark compilation, correcting discrepancies may require a review of basic data to ensure that identities match. For the estimated compilation, this correction generally involves maintaining the relationships between the variables from the previous benchmark compilation.

Table 2.2 presents a parallel between the type of information available in the case of benchmark and estimated compilation for both supply and demand components, and for the internal inconsistency in both compilations.

[3]/ Besides optimization, Bayesian (Tongeren, 1986) and RAS methods can be used, While Bayesian, using normal data, is closely associated with restricted least squares (Danilov and Magnus, 2005), RAS tends toward the unweighted entropy method (Kwaak and Bosma, 2000).

[4]/ Statistical quality is determined by the source (administrative records or statistical design, and indirect sources). Statistical coverage, meanwhile, depends on how up to date and representative a sample is within the universe of companies or establishments making up the branches of economic activity and institutional sectors.

TABLE 2.2

Data availability and internal inconsistency for benchmark and estimated compilations

Type of information	Benchmark compilation	Estimated compilation
Supply	Production, import and valuation tables (except tables for taxes on domestic products) are prepared	For each row, a total is available (sum of columns) reflecting production, imports and taxes on domestic products. General registers are used for valuation tables.
Use	Intermediate and final absorption tables are prepared (except for exports)	Borders of intermediate absorption and purchaser prices are available. For components of final demand, total of columns is available (the sum of the rows) and for value added a total row is available.
Internal inconsistency	Is higher because:: - The assumption of constant productivity is abandoned - The number of products to balance is relevant - There is no previous year for comparison's sake	Is lower because: - Constant productivity is assumed - The number of products to balance is lower - The previous balanced year is available for comparison.

Now, aside from internal inconsistency apparent in the SUTs for a benchmark year, which are eliminated through the balancing process, the comparison with estimated compilation SUTs associated to the previous base, for the same period, make it possible to identify temporal inconsistency for both measures (defined in point 1.3, chapter 1), which reflects differences in their methods and sources. Thus, table 2.3 summarizes the inconsistencies that arise in the compilation process.

TABLE 2.3
Internal and temporal inconsistency

	Benchmark compilation (Bc)	Annual Estimated compilation (AEc)	Temporal inconsistency (ITtp)
Supply (O)	O_{Bc}	O_{AEc}	$O_{Bc} - O_{AEc} = ITtp_O$
Use (U)	U_{Bc}	U_{AEc}	$U_{Bc} - U_{AEc} = ITtp_U$
Internal inconsistency (PCtr)	$O_{Bc} - U_{Bc} = PCtr_{Bc}$	$O_{AEc} - U_{AEc} = PCtr_{AEc}$	

Internal inconsistency occurs when balancing supply-use, for both benchmark and estimated compilations. Temporal inconsistency arises when comparing supply and demand independently, as is occurs with measures carried out in the benchmark and estimated compilations. In this scheme, the loss in the temporal consistency between the supply and use (ITtpU) is referred to as ITtpO.

2.2. Chile's experience with the supply-use table

2.2.1. Criteria used to prepare SUT components

2.2.1.1. Tables associated with supply

In the case of the supply table, the primary and secondary products within domestic supply, or make matrix were evaluated at basic prices and by industry, using activity data; to register purchases of goods and services within the imported supply component, information from the Chilean customs service (*Servicio Nacional de Aduanas*) was used. To determine total supply at purchaser prices, valuation tables were applied to these two tables at basic prices.

In this sense, the table presenting wholesale and retail trade margins was prepared using information from a specific study (see chapter 4, wholesale and retail trade industry). For domestic margins, margin rates from the basic price study were applied. In this case, uses were identified according to the supply hypothesis by type of good for final consumption, final consumption, intermediate consumption and fixed capital. For the wholesale and retail trade margin table for imported products, margin rates were applied to the table of imports traded in Chile.[5]

The non-deductible VAT table was prepared using the actual amount collected by the government, which was distributed using a theoretic VAT. The latter was constructed with the purchaser price value without VAT, for purchases by exempt industries and for household consumption, which pay tax. The import tariff table, meanwhile, was constructed using records from the national customs service, in which each transaction includes an amount for duties paid. These amounts were reconciled and corrected according to amounts actually received by government. Finally the table for taxes on domestic goods was distributed independently, according to the associated product. Fuels, for example, were distributed among intermediate and final users, while figures for revenues from tobacco taxes were completely assigned to households.

2.2.1.2. Use tables

As mentioned in 2.1.2.2, for lack of direct figures, calculations for intermediate and final uses involve establishing a destination hypothesis in the SUT framework. In the destination hypothesis for domestic supply, for each product, the total of domestic production (total row by product in the make matrix) was corrected for inventory change in finished and in-process products, to estimate the total supply of domestic products. Exports are subtracted from total supply, thus determining the supply of products available to satisfy domestic demand. In this case, intermediate and final use hypotheses were also developed, with the latter distinguishing between capital and consumption goods.

For the imported supply hypothesis, disaggregated figures for use and commercialization components were used, processing figures for the supply of imported products by customs entry, classified by the type of good, into intermediate, consumption and capital. Two arrays for imported supply by type of purchaser were then developed, one using direct imports by users, and the other imports purchased for the wholesale and retail trade.

Within the demand hypothesis, the intermediate absorption table was constructed using structure for intermediate consumption by type of input for each industry. These figures came from industrial studies. The final use table, meanwhile, was estimated by component. Thus in calculating household consumption average household expenditure by type of good was updated, using information from the family budget survey (*Survey de Presupuestos Familiares*, EPF). In the case of the table for gross fixed capital formation, different sources were used. Specifically, figures came from the table of imported capital goods uses, tax figures, and partial information for different industries regarding fixed capital investment (economic surveys) or immobilized asset changes (from financial statements). Inventory change was estimated using an inventory change table by type of good for those industries producing goods. For this variable, inventory change for finished products in the hands of retailers was also estimated. Finally, the export table was prepared using a method similar to that applied to imported supply.

The value added table was prepared using figures for wages, depreciation and others tax on production from industrial studies. Information from cross-industry analysis, regarding wage estimations, based on tax figures, was also used. Gross surplus for each industry was obtained as the remainder between the value added and the sum of the rest of their components.

Pre-balanced transaction tables were thus prepared, along with the valuation tables presented below:

[5]/ This base came from the study of wholesale and retail trade margins by product method, which estimated domestic supply and goods whether or not they are sold commercially.

TABLE 2.4
Pre-balanced transaction table, 2003
(trillions of pesos)

SUPPLY TABLES

Table 1
Production at basic prices

Industries	Goods	Trade	Services	Intermediate demand	Consumption	GFCF	Inventory change	Exports	Final demand	Total use purchaser price
Goods	45.862	0.082	0.061							
Trade	0.833	9.135	0.166							
Services	0.470	0.667	40.083							
Total										

Table 2
Imports c.i.f.

Industries	Goods	Trade	Services	Intermediate demand	Consumption	GFCF	VInventory change	Exports	Final demand	Total use purchaser price
Goods	5.959	0.598	1.196	2.846	2.230	-0.001	0.473			13.302
Trade	0.248	0.161	0.033	0.000	0.000	0.000	0.000			0.443
Services	0.105	0.032	1.920	0.015	0.000	0.000	0.000			2.072
Total										

PRE-BALANCED USE TABLES

Table 3.1
Uses at purchaser price: Supply sources (Row /Production)

	Goods	Trade	Services						
Goods	21.000	1.000	6.000	17.000	11.000	0.000	15.000		
Trade	0.400	0.475	0.816	1.707	0.000	0.000	0.307		
Services	5.800	3.823	10.752	19.996	0.000	0.000	2.805		
Total									

Table 3.2
Uses at purchaser price: demand sources (column/industry)

	Goods	Trade	Services						
Goods	22.000	2.000	6.500	16.000	10.000	0.000	15.000		
Trade	0.600	0.475	0.816	1.707	0.000	0.000	0.307		
Services	6.000	3.823	10.752	19.996	0.000	0.000	2.805		
Total									

Table 4

Value added			
Total	19,358	4,411	24,006
Wages	6,759	2,786	11,556
Gross surplus	12,366	1,414	11,853
Other net taxes on production	0,232	0,211	0,598

CUADRO 2.5.
Valuation tables[6], 2003
(trillions of pesos)

	On domestic production: Industries										On imports: Industries										Total
	Goods	Trade	Services	Intermediate demand	Consumption	GFCF	Inventory change	Exports	Final demand	Total use purchaser price	Goods	Trade	Services	Intermediate demand	Consumption	GFCF	Inventory change	Exports	Final demand	Total use purchaser price	
Table 5 Non-deductible VAT																					
Goods	0.045	0.000	0.271		1.344	0.236	0.011	0.000			0.013	0.000	0.046		0.620	0.038	0.003	0.000			2.627
Trade	0.000	0.000	0.016		0.074	0.000	0.000	0.000			0.000	0.000	0.000		0.000	0.000	0.000	0.000			0.090
Services	0.008	0.000	0.253		0.792	0.000	0.000	0.000			0.000	0.000	0.000		0.000	0.000	0.000	0.000			1.053
Total																					
Table 6 Wholesale and retail Trade margin																					
Goods	0.759	0.063	0.395		2.179	0.037	0.020	0.752			1.115	0.020	0.296		1.843	0.795	-0.009	0.099			8.364
Table 7 Net taxes on goods and services											Duties										
Goods	0.122	0.019	0.243		0.437	0.000	0.004	0.000		0.825	0.160	0.021	0.083		0.198	0.062	0.001	0.000			0.526

[6]/ Explicit margins in the valuation table must be subtracted from the basic values before transforming the supply-use table into the input-output matrix (see chapter 3).

In table 2.4, tables 1 and 2 reflect domestic and imported supply, respectively, tables 3.1 and 3.2, intermediate and final uses (before balancing). Table 3.1 was prepared according to a product supplier use hypothesis, and 3.2, according to a demanding industry use hypothesis.[7]

2.2.2. Balancing

2.2.2.1. Approach

In Chile, balancing uses a system approach, which has been reinforced using analytical methods and tools. Specifically, a data model has been implemented on flexible, widely used platforms, which make it easier to identify statistical discrepancies and their later treatment.

In the discrepancy analysis and correction phase, attention focuses on information sources that offer less accuracy and coverage, so the more robust sources experience fewer modifications.

In the Chilean context, the information system generally set predetermined variables associated with the production table, imports, exports, import duties, taxes on production and non-deductible VAT. Changes affected variables in the wholesale and retail trade margins and value added tables. The variables subjected to the most analysis were those of less quality for components of final and intermediate absorption.

2.2.2.2. Balancing criteria by product

The process for balancing supply and use by product took several stages. First, supply and demand by product were examined together using their different valuations. Then statistical discrepancies resulting from the previous analysis were identified. These could reflect differences between intermediate uses of products supplied by economic activities and the intermediate supply assigned, household consumption destined by the nature of good and estimated by demand side, gross fixed capital formation from different sources, or inventory changes estimated for products using survey data or based on tax and accounting data. Third, total intermediate demand was compared to total intermediate supply, and this structure was then analyzed according to the 2003 benchmark and the estimated compilations (base 1996). Finally, suitable corrections to ensure compatibility were applied.

A description of the main aspects of supply-use balancing for the main products follows.

Agricultural products: Most products were estimated, with sufficient coverage, for domestic production, imported supply and external demand. In many cases, intermediate supply was compared to intermediate demand, down to the specific products level. This was the case with agricultural products going to manufacturing: wheat-flour mills, rice-rice mills, barley-barley mills, sugar beet-sugar refinery, tobacco-tobacco plant. Generally, these products were purchased directly by manufacturers with no intermediates involved.

For consumption products, supply was compared with projected demand and domestic and imported product margins reviewed. Normally corrections favored supply, but in some cases the wholesale and retail trade margin was changed, in light of the quality of figures from the different demanding industries.

Fruit products: Supply estimates were based on broad coverage. To assign the main destinations, exports were known, so balancing focused mainly on domestic demand. Reconciliation of manufacturing demand, in the case of grapes for pisco and wine was simple; assigning fruit to manufacturing (conserves, juices and dried fruit) was more complex, given that typically demand is posted at the level of a product basket and not specific products. Household consumption came from the residue and was compared to the demand hypothesis using figures such as the updating of the EPF and population growth, among others.

[7]/ Numbers in tables 3.1 and 3.2 are only for illustrative purposes.

Livestock products: Given high concentration of manufacturing in fowl and pork, these products were already balance when they entered this process. In the case of beef, horse and goat, measuring slaughter animals on the hoof was based on information from slaughterhouses. Something similar occurred in the case of milk received by large milk companies. However, in this case, figures for demand from medium-sized companies not included in previous information were also used. For products demanded by households, coverage was good, making it possible to provide solid measures for final consumption.

Forestry products: Balancing between the supply and demand for these products was made easier by the existence of large manufacturing conglomerates, which concentrate most of the plantations for exotic or introduced species (Monterrey pine, pinus radiata, and eucalyptus), and cover the production chain from primary production to manufactured processing, and even commercialization. The most complex aspect of balancing involved valuations, since certain agreements had to be established regarding the initial definition of industries which, in practice, are hard to distinguish. For example, the price for moving cargo had to be subtracted from manufacturing to be able to compare it with the price for primary industry and thus analyze figures for corrections based on the quality of sources.

Fishing and aquaculture products: Using data from the fishery yearbook (Anuario Estadístico de la Pesca), a physical balance for the origin-destination of fish and shellfish caught and harvested was constructed, following production lines and manufacturing transformation. Valuation of this supply and use (price arbitrage) should be noted within the balancing process. Private consumption goods were measured using supply, which was compared to updated EPF.

Mining products: Most copper production is exported or, to a lesser degree, reflects intermediate demand from mining producers and manufacturers. In the case of the former, consumption of own copper concentrate was relevant, while demand for refined copper for manufactured goods was also identified.

In the case of oil, manufacturing demand was mostly from refineries, while iron was mainly required to manufacture steel. Between the two benchmark years, natural gas emerged as a significant product. It was mainly imported and its treatment was posted within hydrocarbon imports supply and, in the gas industry, in the product's sales margin.

Other products of metallic and non-metallic mining, such as gold, silver, molybdenum, nitrate, limestone and gravel, sand and clay and other minerals, were cross-checked with exports and demand from manufacturing, construction and other industries.

Manufactured products: the branches of manufacturing were identified by main purpose, and classified according to whether they were going to external, intermediate or final (consumption and investment) use.

Export-oriented branches, such as processing fish, wine, wood pulp and paper, wood and basic chemicals (methanol) were suitably defined at production and export levels, so were balanced for intermediate and final use according to demand.

For branches serving household consumption, small amounts required for intermediate goods were first classified, followed by household consumption, defined mainly by the supply of goods. In this case, several goods, such as cigarettes and tobacco, wine and beer, were under declared within the EPF. Other food products, such as meat, dairy, sugar, bread, pasta and others, along with wearing apparel and footwear, were determined by supply. Consumption of durable goods, by nature, was assigned according to the type of user, among them domestic appliances, furniture and motor vehicles. The last were compared to growth in the number of cars owned by individuals. Normally, balancing focused on determining wholesale and retail trade margins.

Consumption products within intermediate goods production were assigned according to the nature of the good, where the breakdown was appropriate, this being the case with tissue products (paper napkins and paper), books, magazines and periodicals, tires and plastic goods, among others.

In the case of intermediate goods, their specifics made it possible to classify them based on supply, as was the case with wood pulp for manufacturing paper and newsprint for newspapers; and construction materials (steel, wood, cement, paint, metallic products) under construction industry.

Electricity, gas and water: for these three, measures came from the production side and destinations were identified in aggregate terms for intermediate demand and final consumption. Given that these products reflected demand across several items, it was possible to identify their cost under each industry.

The first destination for electricity involved intermediate demand, with a portion for own-use. Within other industries, where companies produced their own power, this was posted as a secondary industry within production and within their own consumption.

Water included drinking water, waste management and sewage treatment. It should be noted that several industries posted auxiliary industries involving production and treatment of water, among them wood pulp plans, methanol production, and other manufactured items. In terms of production destination, households were identified as the main destination for this industry.

The gas supply was obtained by destination: manufacturing, commercial and household. In this industry, given that natural gas is imported, outputs were only posted at the distribution margin.

Construction products: The supply from the housing, non-housing and civil engineering activities made up part of gross fixed capital formation, where this was their sole use. This was compared to the investment by destination table. Repairs and demolitions were distributed within intermediate demand for other industries absorbing this kind of cost.

Wholesale and retail trade services: Wholesale and retail trade margins were calculated using a supply hypothesis and rates for wholesale and retail trade margins, distinguishing between margins for intermediate, consumption and capital goods. In the process of arbitrage involving purchaser prices between demanders and users, other than the supply hypothesis, some implicit margins were recalculated. A fundamental arbitrage tool was the reconciliation table for wholesale and retail trade margins, which balanced measures for the wholesale and retail trade based on the product and industry sampled.

Hotel and restaurant services: Supply was the main source, using tax data to distinguish between sales using the Chilean bills typically applied to firms for tax purposes (factura), which were assigned to intermediate demand from firms, and boletas, which were assigned to household consumption. The former provided similar results for supply and use of these services. Balancing involved comparing intermediate demand with intermediate supply, with supply corrected according to the composition of demand. Household consumption, meanwhile, was compared to similar expenditure levels detected in updated EPF.

Transportation services: The first distinction on the supply side made it possible to distinguish between cargo services, whose main destination was intermediate demand, and passenger services, which were initially assigned to household consumption. Intermediate supply for the different modes (railroads, highways, sea and air) were compared to intermediate demand, which normally does not differentiate between them.

Financial services: On the supply side, two main elements were distinguished: i) financial intermediation services indirectly measured (FISIM, identified in the previous benchmark compilation as imputations), assigned to intermediate consumption for a nominal industry, and ii) actual commissions, that went to intermediate and final use (household consumption or exports), depending on the type of service.

Insurance services: General insurance was sorted according to the different risk categories, while exports were determined using commissions generated by reinsures abroad. Given their nature, life and health (Isapre) insurance went completely to household consumption. Production by insurance brokers was treated as intermediate consumption by insurance companies.

Communications services: A hypothesis was developed for residential and intermediate demand using information from surveys and physical indicators from the Undersecretary of Telecommunications, by type of producer and service. Moreover, the supply of telecommunications and mail service abroad was identified, while courier service supply was estimated.

Business services: The supply of business services determined its universe using tax data (income). The composition of products came from the service survey (Encuesta de Servicios, Eserv) and an analysis of accounting information. The supply of these services was compared with the demand from different economic industries. Real estate services basically included sales or rentals of properties, yielding similar levels of supply and use, once services were corrected for those companies involved in building real estate. Demand from other business services, undervalued due to classification problems in surveys, for example machinery and equipment maintenance services, required a cross-table analysis for all industries to ensure maintenance services and imported parts and replacements were suitably classified.

Public administration services: The non-market production for collective or free use was assigned to final consumption of government. Where sold at a non-market price it was assigned to household or intermediate consumption, or exports. Market production was assigned to final or intermediate consumption or exports, depending on the good or service involved.

Health and education services: In this case, a distinction was made between market and non-market education and health services. The former are provided by education or health services, respectively, at an economically significant price, and their main destination is household consumption, except in the case of employee training for different industries. In contrast, the function of public education and health is to provide the respective services for free or at an economically insignificant price, that is, non-market consumption going to government consumption, which demands and "consumes" these services on behalf of households. Both education and health industry, given the strength of their supply figures, prevailed at the balancing stage.

Leisure services: These services include a vast range of industries, oriented mostly to household consumption. However, a significant part of production is financed by other producers. The typical case is for radio and television, whose main income is from the sale of advertising, and does not form part of household consumption, although households are the main users. Services excluded from this item include those required by publicity agencies included under business services. Production corresponding to private, non-profit institutions is included as final consumption under this institutional sector.

Decisions regarding balancing at the product level involved corrections to associated industries. These depended on the type of information used to prepare SUT tables, that is, census or sample type. In general, corrections can be classified as minor, medium or major.

Most industries experienced minor corrections, among them: agriculture, forestry and fishing, mining, electricity, gas and water, land and water transport, communications, financial services and insurance, private and public education and public administration. In general, corrections affected items classified under intermediate consumption and gross output. Moreover, for some industries (mining) and sub-industries (agriculture, fruit farming, livestock and forestry), more detailed cost structures were prepared. Finally, some corrections to this group came from specific industrial studies, as was the case with electricity, where technical coefficients distinguishing between fuel used in electrical power generation (water, natural gas, coal, oil and other) were used.

Medium corrections affected the following industries: manufacturing, construction, restaurants and hotels, freight transport by road, transport connections and public and private health. The reason for these corrections reflected new information: in the case of manufacturing, new data on agriculture and mining inputs; in construction, production and cost levels were reviewed; in restaurants and hotels, alternative sources were used to determine the universe; in health, initial estimates for independent medical services were improved; and in freight transport by road the supply of main inputs was included (fuels, tires, replacement parts and repairs).

Industries experiencing major corrections were: the wholesale and retail trade and personal, social and business services. In the case of the wholesale and retail trade, corrections were made when balancing by commodity flow (domestic and imported wholesale and retail trade margins), by type of production for commercial establishments, and by secondary production for non-commercial companies. Under the service industry, the universe of establishments was corrected, specifically, the universe of private non-profits included under personal and social services was recalculated, to reconcile sampling information from financial statements with existing tax records and data from a comparative study of the non-profit industry (Irarrázaval et al., 2006).

Based on these criteria, numeric records for 2003 SUT presented in table 2.6 were reached. A column whose value "0" denotes the supply-demand balance was added, along with a row expressing the GO − inputs balance for each industry, including gross surplus. After construction of transaction and valuation tables, the SUT is the activity whose preparation requires the most time within the benchmark compilation process.

TABLE 2.6
Supply/basic prices - Use/purchaser prices, 2003
(trillions of pesos)

SUPPLY

Make matrix
Basic price

Table 1

	Goods	Trade	Servicie	Gross output basic prices
	Industries			
Goods	45.9	0.1	0.1	46.0
Domestic supply				46.0
Imports				
Trade	0.8	9.1	0.2	10.1
Services	0.5	0.7	40.1	41.2
TOTAL	47.2	9.9	40.3	97.4
Other goods and services(*):				

Total supply
Purchaser price

	Imports c.i.f.	Import duties	Trade margins	Taxes on goods and services	VAT	Total supply purchaser price	Supply-use balance
	T 2	T 7.1	T 6	T 7.2	T 5		
Goods	13.3	0.5	8.4	0.8	2.6	71.6	0.0
Domestic supply			4.2	0.8	1.9	52.9	
Imports	13.3	0.5	4.2		0.7	18.7	
Trade	0.4	n.a.	-8.4	n.a.	0.1	2.3	0.0
Services	2.1	n.a.	n.a.	n.a.	1.0	44.3	0.0
TOTAL	15.8	0.5	0.0	0.8	3.8	118.3	
Other goods and services(*):	0.8						

USE

Total intermediate transactions
Purchaser price

Total final transactions
Purchaser price

Table 3

Products	Goods	Supply hypothesis	Use hypothesis	Trade	Services	Intermediate demand	Consumption	GFCF	Inventory change	Exports	Final demand	Total use purchaser price
	Industries											
Goods	21.4	21.0	22.0	1.4	6.2	29.1	16.9	10.3	0.5	14.9	42.6	71.6
Supply hypothesis				1.0	6.0	21.2	17.0	11.0	0.0	15.0	43.0	
Use hypothesis				2.0	6.5	15.7	16.0	10.0	0.0	15.0	41.0	
Trade	0.4	0.4	0.6	0.4	0.5	1.3	0.7	0.0	0.0	0.3	1.0	2.3
Services	6.0	5.8	6.0	3.7	11.3	20.9	20.6	0.0	0.0	2.8	23.4	44.3
	27.8			5.5	18.0	51.3	38.2	10.3	0.5	18.0	67.0	118.3
							0.1			0.7		

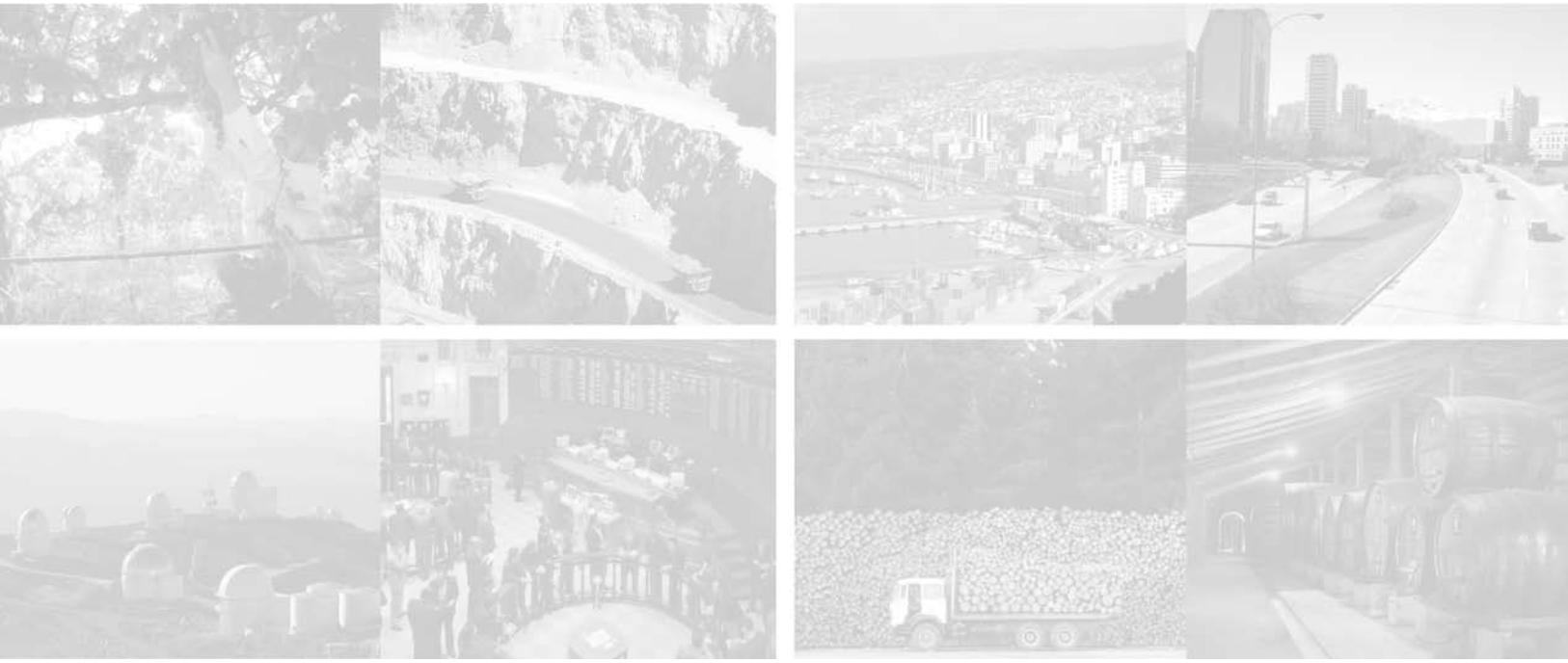
Table 4

Value added	19.4		4.4	22.3	46.0
Wages	6.8		2.8	11.6	21.1
Gross surplus	12.3		1.4	10.2	23.9
Other net taxes on production	0.2		0.2	0.6	1.0
GO. Basic price VBP	47.2		9.9	40.3	97.4
GO – Inputs balance VBP	0.0		0.0	0.0	

GDP origin	51.2
GDP expenditure	51.2
GDP income	51.2

(*) Chilean tourists´ spending abroad and foreign tourists spending in Chile.

3. Input-output matrix



3.1. The input-output matrix

The input-output matrix (IOM) is a double-entry table that measures the relationships between the markets of goods and services or industries, to facilitate the analysis of the production and demand structure in an economy. IOM columns present production cost structures, while the rows distribute production among the different users. This way, each IOM cell represents a production operation and use of goods or services.

The IOM is symmetrical, not in the matrix sense of the word, but rather in the sense that it uses the same classification of products or industries in rows and columns; therefore, it is squared. Thus, the supply table is the same as the production table, that is, there are no records outside the main diagonal, which means there is no secondary or "atypical" production in the industries. In other words, only dairy manufacturing produces milk products, while only clothing manufacture produces clothes.

Valuation is done at basic prices, that is, production and use exclude wholesale and retail trade margins and net taxes on products.

According to the1993 National Accounts System (SNA93) there are two kinds of IOM tables: product by product and industry by industry. Each is obtained using simplifying hypotheses regarding technology or the structure of sales.

3.2. Preparation of the IOM

Supply-use tables (SUT) at basic prices are the starting point when preparing IOM. SUTs provide information regarding goods and services sold to different producer industries and final demand.

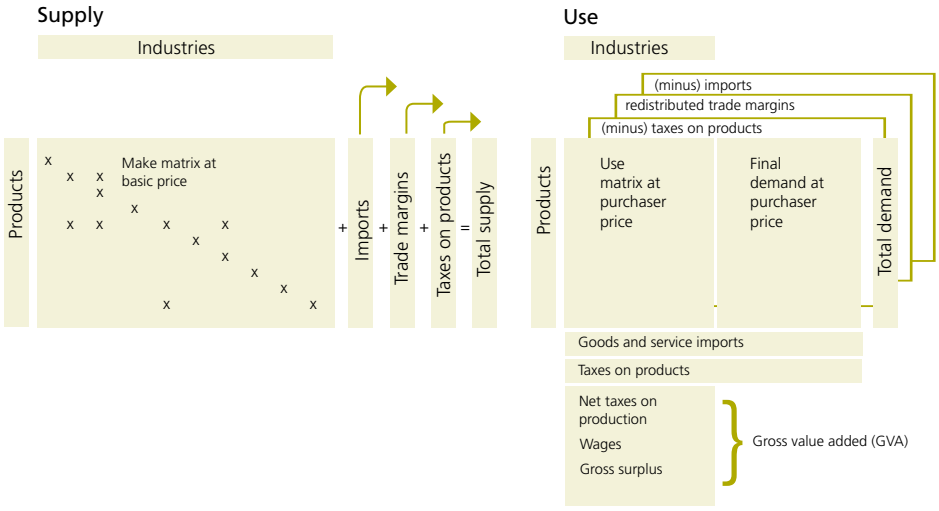
The SUT and IOM tables take different approaches. The SUT look at basic data and ensure their coherence with Gross Domestic Product (GDP) measures using a product, income and expenditure focus, based on ensuring cross-table consistency through microdata-based balancing. The IOM, meanwhile, explores the economy's structural properties and establishes temporal consistency among the records in national accounts.

To obtain the IOM using SUT, the valuation at purchaser price must be changed to basic price,[1] and consumption of imported goods and services must be separated from domestic. Then symmetrical IOMs must be prepared, that is product by product (PxP) or industry by industry (IxI). Moreover, PxP tables offer a better conceptual basis for examining the structure of the economy and are less vulnerable to the structural changes being experienced at the manufacturing level.

The first part of the transformation, involving the change in valuation and the distinction between imported and domestic consumption, is presented in table 3.1.

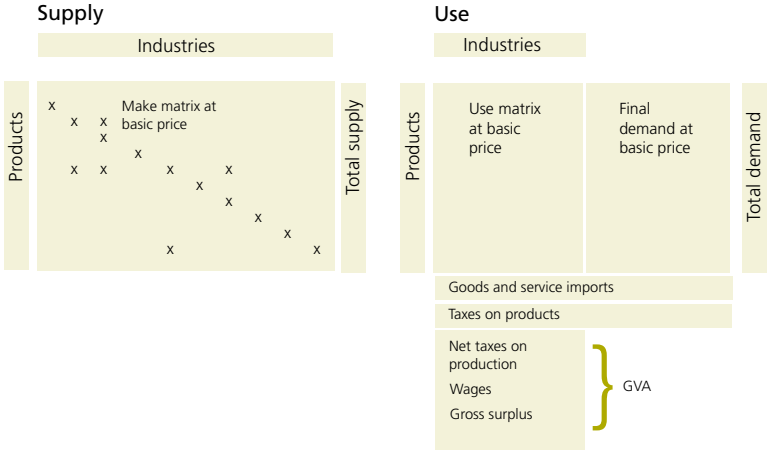
[1]/ This change would be unnecessary if the balancing were done at the basic price.

TABLE 3.1
Supply-use tables from purchaser to basic prices



In the supply table, the operations mentioned above are applied directly, given that products are valued at the basic price. In the use table, imports and taxes must be subtracted and margins redistributed. Imports and taxes are offset using lines that reestablish the identity of total output and total inputs, with margins deduced from each element in the matrix, and then added to wholesale and retail trade output. Schematically, the results of these operations are presented in table 3.2, where the matrices remain asymmetrical, since they continue to express the data in terms of product by industry (PxI).

TABLE 3.2
Supply-use table at basic price (product x industry)



For Chile's 2003 benchmark compilation, the results of the transformation are presented in the SUT at basic price in table 3.3. Definition of the tables on which this SUT is based can be found in table 2.1, chapter 2.

TABLE 3.3
Domestic supply at basic price – domestic use at basic price, 2003
(trillions of pesos)

Make matrix
basic price

Tabla 1

	Goods	Trade	Services	Total
	Industries			
Goods	45.9	0.1	0.1	46.0
Trade	0.8	9.1	0.2	10.1
Services	0.5	0.7	40.1	41.2
Total	47.2	9.9	40.3	97.4

Use matrix
basic price

Table 3
Table 2
Table 5
Table 6
Table 7

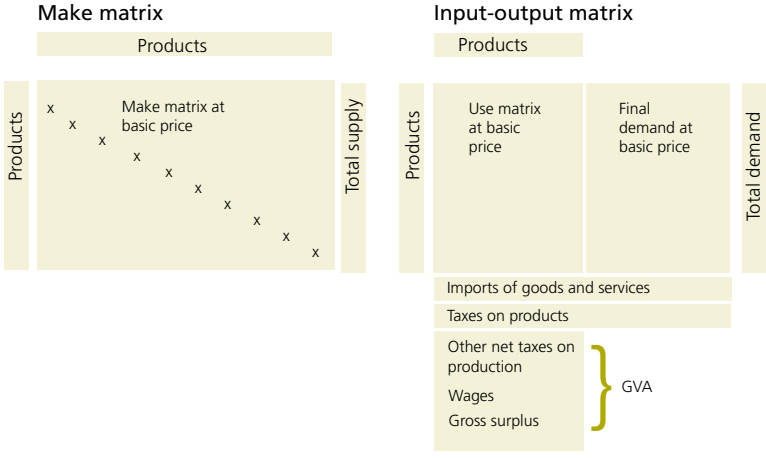
Products	Goods	Trade	Services	Intermediate demand
	Industries			
Goods	13.3	0.7	3.7	17.6
Trade	2.0	0.3	1.2	3.5
Services	5.8	3.6	9.1	18.6
	21.1	4.6	14.0	39.8
Importaciones cif	6.3	0.8	3.1	10.3
Duties + taxes on goods and services	0.3	0.0	0.3	0.6
Non-deductible VAT	0.1	0.0	0.6	0.7
	27.8	5.5	18.0	51.3
Value added	19.4	4.4	22.3	46.0
Wages	6.8	2.8	11.6	21.1
Gross surplus	12.4	1.4	10.1	23.9
Other net taxes	0.2	0.2	0.6	1.0
Gross output (GO) basic price	47.2	9.9	40.3	97.4

Final transactions
basic price

Consumption	GFCF	Inventory change	Exports	Final demand	Total use purchaser price
7.4	6.9	0.5	13.6	28.4	46.0
4.6	0.8	0.0	1.2	6.6	10.1
19.8	0.0	0.0	2.8	22.6	41.2
31.8	7.7	0.5	17.5	57.6	97.4

Finally, the second part of the transformation, to convert asymmetric to symmetric tables, required moving elements out of the make matrix diagonal and into the industries for which they are the main product, as presented in table 3.4.

TABLE 3.4
Input-output matrix at basic price (product x product)



With this last step, the supply of products in the economy does not change, but the output of each industry does. For each element falling outside the diagonal that moves in the make matrix, an equivalent change in inputs must be made in the absorption matrix, to maintain the relationship between total output and total inputs by industry.

The way in which inputs are transferred among industries depends on assumptions regarding technologies. The traditional consensus (UN, 1993 and 1999, and Eurostat, 1995) distinguishes the following:

i) Technology-product. Assumes that all products have the same input structure, regardless of the producing industry. Thus, when inputs move from the industry of origin to the industry of destination, the inputs structure employed is the one for the destination industry. This may produce negative intermediate consumption records in the product or in the industry of origin, depending on whether the table is product-product or industry - industry.

ii) Technology-industry. Assumes that all main or secondary products, generated by an industry have the same structure of inputs. Thus, when inputs are moved from one industry of origin to another industry or destination, the structure of inputs used in the industry of origin is moved. Because of this, negative intermediate consumption records cannot be produced in the product or industry of origin, regardless of whether this is a product-product or industry – industry table.

iii) Technology-hybrid. This assumes that not all elements outside the make matrix diagonal reflect the same technological assumption, but rather may respond individually to any of the previous assumptions.

Appendix 3.1 provides a numeric exercise as an example of the technologies mentioned in i) and ii).

It should be noted that the negative records arising from application of the technology-product assumption can be used as a diagnostic tool. Thus, for example, it could indicate that for any given entry, an unsuitable technological assumption was used. Otherwise, it could indicate the use of unsuitable structures within the import, tax and margin matrices used to convert SUT at purchaser to SUT at basic price, or raise doubts about the quality of the SUT. It could also reflect the fact that the negative entry is the result of a classification flaw. Finally, since data comes from several sources, some negative records may reflect inconsistent or erroneous data used to produce the SUT at purchaser price.

Table 3.5 provides the results from a applying each of these hypotheses to the case of Chile. Note the high level of aggregation in the example, combined with the low relationship between secondary and primary products, which inhibits the appearance of negative records. The only exception was gross fixed capital formation for services (-0.1 trillion 2003 pesos), when the technology-product assumption is used in the industry-by-industry table, reflecting financial intermediation services indirectly measured (FISIM).

TABLE 3.5
Input-output matrix using alternative assumptions, 2003
(trillions of pesos)

PRODUCT / PRODUCT TABLES

Technology-product assumption

	Goods	Trade	Services
Goods	46		
Trade		10.1	
Services			41.2

Products		Goods	Trade	Services	Consumption	GFCF	Inventory change	Exports	Total use purchaser price
Products	Goods	13.2	0.7	3.7	7.4	6.9	0.5	13.6	46.0
	Trade	2.0	0.3	1.2	4.6	0.8	0.0	1.2	10.1
	Services	5.4	3.8	9.3	19.8	0.0	0.0	2.8	41.2
Imports c.i.f.		6.2	0.8	3.2					
Duties and taxes on goods and services		0.3	0.0	0.3					
Non-deductible VAT		0.1	0.0	0.6					
		27.2	5.7	18.4					
Value added		18.8	4.4	22.8					
Wages		6.4	2.9	11.8					
Gross surplus		12.2	1.4	10.4					
Other net taxes on production		0.2	0.2	0.6					
GO basic price		46.0	10.1	41.2					

Technology-industry assumption

	Goods	Trade	Services
Goods	46.0		
Trade		10.1	
Services			41.2

Products		Goods	Trade	Services	Consumption	GFCF	Inventory change	Exports	Total use purchaser price
Products	Goods	12.9	0.9	3.8	7.4	6.9	0.5	13.6	46.0
	Trade	2.0	0.3	1.2	4.6	0.8	0.0	1.2	10.1
	Services	5.7	3.5	9.4	19.8	0.0	0.0	2.8	41.2
Imports c.i.f.		6.1	0.9	3.2					
Duties and taxes on goods and services		0.3	0.0	0.3					
Non-deductible VAT		0.1	0.0	0.6					
		27.1	5.6	18.6					
Value added		18.9	4.5	22.6					
Wages		6.6	2.7	11.7					
Gross surplus		12.1	1.6	10.3					
Other net taxes on production		0.2	0.2	0.6					
GO basic price		46.0	10.1	41.2					

INDUSTRY / INDUSTRY TABLES

Technology-industry assumption

	Goods	Trade	Services
Goods	47.2		
Trade		9.9	
Services			40.3

Actividades		Goods	Trade	Services	Consumption	GFCF	Inventory change	Exports	Total use purchaser price
Actividades	Goods	13.4	0.8	3.9	8.0	7.0	0.5	13.7	47.2
	Trade	2.0	0.3	1.2	4.5	0.8	0.0	1.1	9.9
	Services	5.7	3.5	8.9	19.4	0.0	0.0	2.8	40.3
Imports c.i.f.		6.3	0.8	3.1					
Duties and taxes on goods and services		0.3	0.0	0.3					
Non-deductible VAT		0.1	0.0	0.6					
		27.8	5.5	18.0					
Value added		19.4	4.4	22.3					
Wages		6.8	2.8	11.6					
Gross surplus		12.4	1.4	10.1					
Other net taxes on production		0.2	0.2	0.6					
GO basic price		47.2	9.9	40.3					

Technology-product assumption

	Goods	Trade	Services
Goods	47.2		
Trade		9.9	
Services			40.3

Actividades		Goods	Trade	Services	Consumption	GFCF	Inventory change	Exports	Total use purchaser price
Actividades	Goods	13.6	0.7	3.7	7.5	7.1	0.5	14.0	47.2
	Trade	1.9	0.3	1.2	4.8	0.8	0.0	1.0	9.9
	Services	5.6	3.6	9.1	19.5	-0.1	0.0	2.6	40.3
Imports c.i.f.		6.3	0.8	3.1					
Duties and taxes on goods and services		0.3	0.0	0.3					
Non-deductible VAT		0.1	0.0	0.6					
		27.8	5.5	18.0					
Value added		19.4	4.4	22.3					
Wages		6.8	2.8	11.6					
Gross surplus		12.4	1.4	10.1					
Other net taxes on production		0.2	0.2	0.6					
GO basic price		47.2	9.9	40.3					

Chile has traditionally opted for the technology-industry assumption, since construction using this hypothesis is more suitable from an analytical perspective. Arguments of this sort range from the idea that SUTs are essentially based on industry information (Thage, 2005), through the idea that the technology-product assumption requires that the number of industries must be similar to the number of products in order for the process to involve invertible matrices (Mesnard, 2002) as proven by the IOM estimation procedures, requiring, moreover, reinterpreting negative transactions.

Chile's domestic input-output matrices are presented below, for 1996 and 2003. The product-by-product matrix offers a 12-product aggregation according to the technology-industry assumption (table 3.6), while the industry-by-industry matrix presents 12 industries, based on the sales by fixed product assumption (table 3.7), following Chile's tradition of estimating the matrix using the assumptions mentioned above. The product-by-product matrix is used to explore the impact of primary input prices on product prices, while the industry-by-industry matrix is useful for determining the effect of changes in demand on the gross value of production.

In addition, the symmetrical product-product version of the imported goods and services use table is also provided (table 3.8). This matrix cannot be constructed in the same way as those of domestic origin, since there is no supply table for product-industry imports. No information is available on what external agents are involved in imported supply, either, with the only data being total supply by product, so no assumptions regarding technology or the structure of sales can be applied. One option would be to obtain domestic IOM plus imported ones, assuming that foreign supply has the same structure for primary and secondary products as domestic supply, and then, from the difference, determining the symmetrical matrix for imports. The assumption implicit to this calculation is not very realistic. Another alternative (ONS, 2002) is to use the domestic product-by-product use matrix structure and then, using a mathematical procedure known as RAS,[2] restrict the total row (r) to records supplied by the product-industry import use and make total column (s) consistent with the product-product goods and service import, and other primary inputs.

[2]/ This consists of a mathematical procedure in which a matrix with structure A is prorated across row (r) / column (s) totals so that the new B matrix has row and column totals corresponding to vectors r and s. respectively. This method is widely used as the final stage in balancing annual supply-use tables.

TABLE 3.6
Domestic IOM at basic price (product x product), 1996 and 2003
Assumption: technology-industry

	Agriculture and forestry	Capture fishery	Mining	Manufacturing	Electricity, gas and water	Construction	Wholesale and retail trade, hotels and restaurants	Transportation and communications	Financial intermediation and business services	Owner-occupied dwellings	Personal and social services	Public administration	Consumption	GFCF	Inventory change	Exports	FISIM[3]	Total use purchaser price
1996 (billions of current pesos)																		
Agriculture and forestry	163	3	2	1,111	0	7	90	2	6	0	17	9	413	171	-5	390	0	2,380
Capture fishery	0	29	0	279	0	0	19	0	1	0	1	0	51	0	3	79	0	464
Mining	19	0	391	202	25	92	9	1	7	1	1	0	10	1	108	2,984	0	3,850
Manufacturing	387	106	231	2,001	63	1,384	730	558	324	4	255	86	4,476	204	75	2,588	0	13,473
Electricity, gas and water	27	2	193	193	460	18	110	33	86	10	41	53	391	0	0	0	0	1,616
Construction	1	0	13	37	24	8	10	32	72	228	31	68	24	4,908	0	0	0	5,456
Wholesale and retail trade, hotels and restaurants	116	17	159	553	18	303	345	399	113	2	126	61	3,624	672	41	546	0	7,093
Transportation and communications	65	15	159	519	9	38	875	376	211	0	65	46	1,407	0	0	942	0	4,727
Financial intermediation and business services	136	19	322	949	103	220	951	329	768	6	235	143	863	0	0	131	1,015	6,191
Owner-occupied dwellings	0	0	0	0	0	0	0	0	0	0	0	0	2,610	0	0	0	0	2,610
Personal and social services	4	1	7	86	1	1	27	17	191	0	93	53	3,897	0	0	1	0	4,380
Public administration	1	0	0	0	0	0	5	1	0	0	0	0	1,875	0	0	5	0	1,889
Total	918	192	1,478	5,929	702	2,071	3,172	1,748	1,781	251	866	519	19,641	5,957	222	7,667	1,015	54,129
Imports c.i.f.	119	24	309	2,252	89	398	368	692	240	3	83	133	1,328	2,053	83	434	0	8,608
Duties + taxes on goods and services	31	7	45	221	15	58	34	134	20	0	12	4						
Non-deductible VAT	0	0	0	0	0	0	1	90	123	0	110	77						
	1,069	224	1,833	8,403	806	2,526	3,575	2,664	2,163	254	1,072	732						
Value added	1,311	240	2,018	5,069	810	2,930	3,518	2,064	4,028	2,356	3,308	1,156						
Wages	533	102	582	1,685	148	1,510	1,354	950	1,961	30	2,098	896						
Gross surplus	740	136	1,430	3,382	658	1,378	2,039	1,093	1,997	2,145	1,177	242						
Other net taxes on production	38	1	6	3	4	41	126	21	70	180	33	18						
GO basic price	2,380	464	3,850	13,473	1,616	5,456	7,093	4,727	6,191	2,610	4,380	1,889						
2003 (billions of current pesos)																		
Agriculture and forestry	476	2	2	1,817	4	33	95	5	28	1	16	3	480	110	40	796	0	3,906
Capture fishery	0	26	0	279	1	2	20	1	5	0	1	0	71	0	66	850	0	1,321
Mining	12	0	791	440	1	159	24	10	20	0	4	0	43	0	315	6,251	0	8,070
Manufacturing	643	453	673	3,403	33	1,764	1,021	873	591	35	358	159	6,036	350	40	5,711	0	22,142
Electricity, gas and water	32	5	432	269	1,039	51	123	42	108	37	95	80	758	0	0	0	0	3,071
Construction	6	0	6	32	11	1	94	24	123	585	95	68	0	6,450	0	0	0	7,496
Wholesale and retail trade, hotels and restaurants	290	43	223	1,133	15	367	492	660	391	8	254	66	5,584	832	12	1,158	0	11,526
Transportation and communications	91	30	335	914	94	139	1,486	1,334	478	4	172	67	3,381	0	0	2,248	0	10,773
Financial intermediation and business services	238	106	962	1,643	239	749	2,091	1,054	2,141	24	678	285	1,389	0	0	471	1,740	13,809
Owner-occupied dwellings	0	0	0	0	0	0	0	0	0	0	0	0	3,675	0	0	0	0	3,675
Personal and social services	10	6	15	63	4	7	67	64	299	0	404	137	7,266	0	0	47	0	8,388
Public administration	2	0	0	4	0	0	15	0	1	0	1	0	3,145	0	0	17	0	3,185
Total	1,800	671	3,438	9,997	1,441	3,271	5,528	4,066	4,185	693	2,076	863	31,827	7,741	472	17,549	1,740	97,361
Imports c.i.f.	218	40	453	4,581	281	510	962	1,667	1,117	2	260	161	2,860	2,230	-1	473	0	15,816
Duties + taxes on goods and services	44	13	54	131	5	30	47	254	43	1	22	5						
Non-deductible VAT	0	0	0	0	0	67	2	168	166	0	130	119						
	2,063	725	3,945	14,709	1,727	3,877	6,540	6,155	5,511	696	2,489	1,148						
Value added	1,843	596	4,125	7,433	1,344	3,619	4,986	4,617	8,299	2,978	5,899	2,036						
Wages	709	197	774	2,473	186	2,320	3,049	1,644	3,811	54	4,207	1,677						
Gross surplus	1,080	396	3,330	4,897	1,145	1,222	1,728	2,927	4,334	2,572	1,647	354						
Other net taxes on production	54	3	20	64	13	76	209	46	153	352	46	5						
GO basic price	3,906	1,321	8,070	22,142	3,071	7,496	11,526	10,773	13,809	3,675	8,388	3,185						

[3]/ The distribution of banking imputations (FISIM) reflects the process of converting supply-use tables in the IOM.

TABLE 3.7
Domestic IOM at basic price (industry x industry), 1996 and 2003
Assumption: fixed structure of sales by product

	Agriculture and forestry	Capture fishery	Mining	Manufacturing	Electricity, gas and water	Construction	Wholesale and retail trade, hotels and restaurants	Transportation and communications	Financial intermediation and business services	Owner-occupied dwellings	Personal and social services	Public administration	Consumption	GFCF	Inventory change	Exports	FISIM[1]	Total use purchaser price
1996 (billions of current pesos)																		
Agriculture and forestry	165	2	1	1,159	0	9	53	1	1	0	17	10	421	172	-5	394	0	2 402
Capture fishery	8	49	5	305	1	29	25	12	6	0	6	2	143	4	5	130	1	732
Mining	23	2	408	218	28	104	12	6	8	0	4	2	58	3	108	2,996	4	3,982
Manufacturing	384	167	244	1,975	68	1,352	692	564	286	4	255	97	4,556	241	75	2,540	7	13,507
Electricity, gas and water	30	3	206	209	507	13	125	35	61	11	45	62	411	32	0	4	19	1,773
Construction	1	0	14	38	26	7	9	29	68	226	29	75	24	4,876	0	0	0	5,420
Wholesale and retail trade, hotels and restaurants	116	27	165	559	21	295	358	387	111	2	125	67	3,432	623	38	540	27	6,893
Transportation and communications	65	23	162	506	11	40	873	362	181	0	64	51	1,379	3	0	912	8	4,639
Financial intermediation and business services	127	27	308	879	104	201	884	293	669	5	215	145	805	2	0	122	935	5,720
Owner-occupied dwellings	0	0	0	0	0	0	0	0	0	0	0	0	2,604	0	0	0	0	2,604
Personal and social services	5	2	10	95	2	3	32	17	191	0	93	59	3,850	1	0	3	8	4,372
Public administration	3	1	6	18	1	3	30	11	11	0	5	3	1,960	0	0	25	7	2,083
Total	927	303	1,528	5,961	770	2,056	3,093	1,717	1,593	249	858	572	19,641	5,957	222	7,667	1,015	54,129
Imports c.i.f.	120	35	319	2,318	97	396	296	694	206	2	80	146	1,328	2,053	83	434	0	8,608
Duties + taxes on goods and services	31	11	47	224	17	57	27	136	16	0	12	4						
Non-deductible VAT	0	0	0	0	0	0	0	88	119	0	109	85						
	1,079	350	1,893	8,503	884	2,509	3,416	2,635	1,935	251	1,059	808						
Value added	1,323	383	2,089	5,003	889	2,912	3,477	2,004	3,786	2,353	3,313	1,276						
Wages	538	164	602	1,646	162	1,507	1,344	909	1,862	29	2,097	988						
Gross surplus	747	217	1,481	3,358	723	1,364	2,001	1,077	1,858	2,143	1,182	267						
Other net taxes on production	38	2	6	-1	4	41	132	19	66	180	33	20						
GO basic price VBP	2,402	732	3,982	13,507	1,773	5,420	6,893	4,639	5,720	2,604	4,372	2,083						
2003 (billions of current pesos)																		
Agropecuario-silvícola	476	2	0	1,922	0	23	34	4	0	1	17	3	480	110	40	796	0	3,905
Capture fishery	2	29	2	304	0	6	14	4	1	0	2	1	90	1	66	867	0	1,389
Mining	25	9	843	491	2	188	30	33	26	1	14	5	182	11	310	6,256	6	8,431
Manufacturing	652	471	739	3,567	52	1,738	1,017	943	511	45	382	183	6,297	499	41	5,671	38	22,847
Electricity, gas and water	33	6	429	278	1,126	30	127	49	75	42	94	89	772	68	4	92	12	3,325
Construction	6	0	6	32	12	0	96	22	110	567	91	72	0	6,253	0	0	0	7,267
Wholesale and retail trade, hotels and restaurants	279	48	267	1,175	25	369	549	680	394	9	268	81	5,216	762	11	1,110	83	11,325
Transportation and communications	96	34	370	966	106	144	1,581	1,383	373	7	183	79	3,396	30	0	2,239	36	11,022
Financial intermediation and business services	212	99	895	1,481	229	650	1,910	955	1,732	21	597	275	1,305	6	0	428	1,537	12,332
Owner-occupied dwellings	0	0	0	0	0	0	0	0	0	0	0	0	3,674	0	0	0	0	3,674
Personal and social services	14	7	27	85	7	16	90	75	301	0	404	149	7,125	2	0	56	20	8,378
Public administration	5	1	8	21	2	5	39	16	18	0	12	5	3,289	0	0	34	10	3,464
Total	1,800	706	3,587	10,323	1,562	3,168	5,487	4,162	3,541	693	2,063	939	31,827	7,741	472	17,549	1,740	97,361
Imports c.i.f.	218	42	466	4,816	297	473	843	1,715	951	2	254	176	2,860	2,230	-1	473	0	15,816
Duties + taxes on goods and services	44	14	57	134	5	28	44	263	31	1	22	5						
Non-deductible VAT	0	0	0	0	0	67	0	171	158	0	127	130						
	2,063	762	4,110	15,273	1,864	3,736	6,374	6,311	4,681	696	2,466	1,250						
Value added	1,842	627	4,322	7,574	1,461	3,531	4,951	4,711	7,651	2,978	5,912	2,215						
Wages	709	207	813	2,535	198	2,298	3,133	1,653	3,463	53	4,215	1,825						
Gross surplus	1,080	417	3,488	4,974	1,249	1,159	1,597	3,011	4,050	2,572	1,650	385						
Other net taxes on production	54	4	21	65	14	75	221	47	138	352	46	5						
GO basic price	3,905	1,389	8,431	22,847	3,325	7,267	11,325	11,022	12,332	3,674	8,378	3,464						

TABLE 3.8
Imported IOM at c.i.f. prices (product x product), 1996 and 2003
Assumption: technology-industry

	Agriculture and forestry	Capture fishery	Mining	Manufacturing	Electricity, gas and water	Construction	Wholesale and retail trade, hotels and restaurants	Transportation and communications	Financial intermediation and business services	Owner-occupied dwellings	Personal and social services	Public administration	Consumption	GFCF	Inventory change	Exports	Total use purchaser price
1996 (billions of current pesos)																	
Agriculture and forestry	7	0	0	155	0	0	5	0	1	0	1	2	16	1	0	0	188
Capture fishery	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Mining	8	0	212	289	33	42	5	1	6	0	0	0	1	0	7	16	622
Manufacturing	93	22	68	1,561	45	339	230	513	158	2	67	92	1,311	2,053	75	417	7,047
Electricity, gas and water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wholesale and retail trade, hotels and restaurants	3	0	5	47	1	8	12	40	6	0	4	7	0	0	0	0	134
Transportation and communications	5	1	15	127	2	3	87	108	32	0	5	16	0	0	0	0	401
Financial intermediation and business services	3	0	9	72	7	5	29	30	37	0	6	15	0	0	0	0	215
Owner-occupied dwellings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Personal and social services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Public administration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Imports c.i.f. total	119	24	309	2,252	89	398	368	692	240	3	83	133	1,328	2,053	83	434	8,608
2003 (billions of current pesos)																	
Agriculture and forestry	19	0	0	220	2	1	8	1	4	0	1	0	22	2	6	0	286
Capture fishery	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Mining	12	0	351	1,331	14	126	50	44	77	0	7	0	25	0	-33	0	2,004
Manufacturing	160	38	73	2,510	82	342	504	926	551	2	158	107	2,799	2,227	27	473	10,979
Electricity, gas and water	0	0	0	2	25	0	1	0	1	0	0	1	0	0	0	0	31
Construccction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wholesale and retail trade, hotels and restaurants	13	1	4	152	7	13	44	128	66	0	20	8	0	0	0	0	457
Transportation and communications	7	1	11	197	69	8	214	412	130	0	22	13	15	0	0	0	1,097
Financial intermediation and business services	8	1	14	165	82	20	140	152	271	0	41	26	0	0	0	0	920
Owner-occupied dwellings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Personal and social services	0	0	0	3	1	0	2	4	16	0	10	5	0	0	0	0	40
Public administration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Imports c.i.f. total	218	40	453	4,581	281	510	962	1,667	1,117	2	260	161	2,860	2,230	-1	473	15,816

The three tables above describe structural characteristics of the Chilean economy and their changes between 1996 and 2003. Thus, an examination of these matrices can identify, for example, in tables 3.6 and 3.8, that the imported component of final consumption of manufactured products went from 0.23 (1,311/(1,311 + 4,476)) to 0.32 (2,799 / (2,799 + 6,036))[4], that is the proportion of imported manufactured products rose within consumption of this type of good.

3.3. The direct coefficient matrix and the Leontief inverse matrix

3.3.1 The direct coefficient matrix

The direct coefficient matrix offers a tool for examining the underlying structure of the economy. It is formed by dividing each element in each column of the IOM intermediate use by total output. The main characteristics of this matrix, usually identified using the letter A, are:

- Each coefficient ranges from 0 to 1.
- The sum of each column is 1.
- Each coefficient shows the proportion of intermediate and primary inputs (imported inputs and value added) required producing a determined level of activity (technological profile).

[4]/ The same observations as used previously apply here.

Despite its simplicity, the direct coefficient matrix is still the only tool that can determine, for example (table 3.9), that the direct import coefficient for intermediate manufacturing inputs went from 17.2% in 1996 to 21.1% in 2003, almost doubling in the last year wages' share of manufacturing GO (11.1%). Thus, the change in coefficients reflects changes in the structure of the economy.

TABLE 3.9
Direct coefficients matrix,[5] 1996 and 2003
Assumption: fixed structure of sales by product

	Agriculture and forestry	Capture fishery	Mining	Manufacturing	Electricity, gas and water	Construction	Wholesale and retail trade, hotels and restaurants	Transportation and communications	Financial intermediation and business services	Owner-occupied dwellings	Personal and social services	Public administration	Total
1996													
Agriculture and forestry	0.07	0.00	0.00	0.09	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.03
Capture fishery	0.00	0.07	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Mining	0.01	0.00	0.10	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Manufacturing	0.16	0.23	0.06	0.15	0.04	0.25	0.10	0.12	0.05	0.00	0.06	0.05	0.11
Electricity, gas and water	0.01	0.00	0.05	0.02	0.29	0.00	0.02	0.01	0.01	0.00	0.01	0.03	0.02
Construction	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.09	0.01	0.04	0.01
Wholesale and retail trade, hotels and restaurants	0.05	0.04	0.04	0.04	0.01	0.05	0.05	0.08	0.02	0.00	0.03	0.03	0.04
Transportation and communications	0.03	0.03	0.04	0.04	0.01	0.01	0.13	0.08	0.03	0.00	0.01	0.02	0.04
Financial intermediation and business services	0.05	0.04	0.08	0.07	0.06	0.04	0.13	0.06	0.12	0.00	0.05	0.07	0.07
Owner-occupied dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal and social services	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.03	0.01
Public administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.39	0.41	0.38	0.44	0.43	0.38	0.45	0.37	0.28	0.10	0.20	0.27	0.36
Imports c.i.f.	0.05	0.05	0.08	0.17	0.05	0.07	0.04	0.15	0.04	0.00	0.02	0.07	0.09
Duties + taxes on goods and services	0.01	0.02	0.01	0.02	0.01	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.01
Non-deductible VAT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.02	0.04	0.01
	0.45	0.48	0.48	0.63	0.50	0.46	0.50	0.57	0.34	0.10	0.24	0.39	0.47
Value added	0.55	0.52	0.52	0.37	0.50	0.54	0.50	0.43	0.66	0.90	0.76	0.61	0.53
Wages	0.22	0.22	0.15	0.12	0.09	0.28	0.20	0.20	0.33	0.01	0.48	0.47	0.22
Gross surplus	0.31	0.30	0.37	0.25	0.41	0.25	0.29	0.23	0.32	0.82	0.27	0.13	0.30
Other net taxes on productions	0.02	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.01	0.07	0.01	0.01	0.01
GO basic price	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2003													
Agriculture and forestry	0.12	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Capture fishery	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining	0.01	0.01	0.10	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Manufacturing	0.17	0.34	0.09	0.16	0.02	0.24	0.09	0.09	0.04	0.01	0.05	0.05	0.11
Electricity, gas and water	0.01	0.00	0.05	0.01	0.34	0.00	0.01	0.00	0.01	0.01	0.01	0.03	0.02
Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.15	0.01	0.02	0.01
Wholesale and retail trade, hotels and restaurants	0.07	0.03	0.03	0.05	0.01	0.05	0.05	0.06	0.03	0.00	0.03	0.02	0.04
Transportation and communications	0.02	0.02	0.04	0.04	0.03	0.02	0.14	0.13	0.03	0.00	0.02	0.02	0.05
Financial intermediation and business services	0.05	0.07	0.11	0.06	0.07	0.09	0.17	0.09	0.14	0.01	0.07	0.08	0.09
Owner-occupied dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal and social services	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.05	0.04	0.01
Public administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.46	0.51	0.43	0.45	0.47	0.44	0.48	0.38	0.29	0.19	0.25	0.27	0.39
Imports c.i.f.	0.06	0.03	0.06	0.21	0.09	0.07	0.07	0.16	0.08	0.00	0.03	0.05	0.11
Duties + taxes on goods and services	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.01
Non-deductible VAT	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.00	0.02	0.04	0.01
	0.53	0.55	0.49	0.67	0.56	0.51	0.56	0.57	0.38	0.19	0.29	0.36	0.51
Value added	0.47	0.45	0.51	0.33	0.44	0.49	0.44	0.43	0.62	0.81	0.71	0.64	0.49
Wages	0.18	0.15	0.10	0.11	0.06	0.32	0.28	0.15	0.28	0.01	0.50	0.53	0.22
Gross surplus	0.28	0.30	0.41	0.22	0.38	0.16	0.14	0.27	0.33	0.70	0.20	0.11	0.26
Other net taxes on productions	0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.01	0.10	0.01	0.00	0.01
GO basic price	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

[5]/ From domestic IOM at basic prices. industry by industry.

Aside from the direct coefficient matrix, in the past 70 years a considerable number of indicators for describing and analyzing the structural properties of economies have been developed. The debate remains very active about IOM assumptions, the problems of aggregation and techniques for desegregation (International Association for Research in Income and Wealth, IARIW).

3.3.2. The Leontief inverse matrix

While the direct coefficient matrix helps to identify the structure of the economy in strictly static terms, the Leontief inverse matrix makes it possible to examine the relationships between economic industries and therefore favors a more dynamic analysis. The Leontief inverse matrix presents the relationship between final and total demand for each industry. Columns reflect the effects of an increase in a demand unit for all products within an industry on all the other industries (*backward effect*); while rows express the effect of a single unit increase in demand on all industry products across the row (*forward effect*).

To prepare the Leontief inverse matrix, the following assumptions are used to simplify:

- Products produced by the same domestic economic industries are homogeneous, that is, within each industry substitution elasticity is infinite.
- Products produced by different industries are heterogeneous: thus, substitution elasticity is zero.[6]
- Production of any industry can be represented using a linear combination of inputs, eliminating economies or lack of economies of scale[7] (constant technical coefficients).
- Industry technology is homogeneous and is exogenously determined.
- There is perfect complementarity between capital and labor, that is, factor substitution elasticity is zero.

The following notation is used:

x_{ij}= Intermediate demand by industry j for product i.

x_i= Total output of product i.

y_i= Final demand for product i.

g_i= Industry value added.

i, j =1,2,....,n, with n representing the number of products or industries considered.

Therefore, total supply of product i must equal

$$x_1=x_{11}+x_{12}+....+x_{1n}+y_1$$

$$\vdots$$

$$x_n=x_{n1}+x_{n2}+....+x_{nn}+y_n$$

[6]/ This assumption affects relatively more industry by industry tables (table 3.7) than product by product (table 3.6), since the economies of scale are more significant within industries than for products.

[7]/ The same assumption is applied as in the previous example.

Or, in matrix format:

$$\begin{bmatrix} x_1 \\ \vdots \\ x_n \end{bmatrix} = \begin{bmatrix} x_{11} & \cdots & x_{1n} \\ \vdots & \ddots & \vdots \\ x_{n1} & \cdots & x_{nn} \end{bmatrix} \begin{bmatrix} 1 \\ \vdots \\ 1 \end{bmatrix} + \begin{bmatrix} y_1 \\ \vdots \\ y_n \end{bmatrix}$$

Therefore, given that the model assumes that the portion of factors used by each industry is constant, the following technical coefficients are defined:

$a_{ij} = x_{ij} / x_j$ Technical coefficient for intermediate products, and:
$v_j = g_j / x_j$ Technical coefficient for primary inputs,
Meeting the following:

$$\Sigma x_{ij} + g_j = x_j$$
$$\Sigma a_{ij} + v_j = 1$$

Given that to produce a certain quantity of product i a specific linear combination of factors is necessary, the total supply of product i can be rewritten as:

$$x_1 = a_{11}x_1 + a_{12}x_2 + \ldots\ldots + a_{1n}x_n + y_1$$
$$\vdots$$
$$x_n = a_{n1}x_1 + a_{n2}x_2 + \ldots\ldots + a_{nn}x_n + y_n$$

In matrix terms:

$$\begin{bmatrix} x_1 \\ \vdots \\ x_n \end{bmatrix} = \begin{bmatrix} a_{11} & \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{n1} & \cdots & a_{nn} \end{bmatrix} \begin{bmatrix} x_1 \\ \vdots \\ x_n \end{bmatrix} + \begin{bmatrix} y_1 \\ \vdots \\ y_n \end{bmatrix}$$

which is equivalent to,

$$x = Ax + y,$$

the final result is:

$$x = (I - A)^{-1}y \qquad (1)$$

where,

A: direct coefficients matrix

I: matrix identity

$(I - A)^{-1}$: Leontief inverse matrix.

Now it is possible to advance toward an economic interpretation of the Leontief inverse matrix coefficients, in which elements are denoted using α_{ij}; starting from equation (1) production i can be calculated as:

$$x_i = \alpha_{i1}y_1 + \alpha_{i2}y_2 + \ldots\ldots + \alpha_{in}y_n$$

The element α_{ij} indicates the additional quantity of product i required by industry j to deal with a single unit rise in final demand.

Logically, $\alpha_{ij}>1$, since to produce an additional unit of final demand production must be boosted by at least one unit in given branch of the economy. However, given that the production of inputs to meet additional demand involves increasing production of other industries, these will also require as inputs the same products from the industry initially affected by higher demand. Thus, additional demand over and above the beneficiary industry will be present, originally required by higher final demand. The final effect on all industries of a single unit increase in final demand for product i will be the sum of the elements in the producer industry column of i, which is called the production multiplier.

The final effect on demand for product i of a single unit increase in final demand for all products will be the sum of elements in the row, which is called the uniform expansion demand multiplier.

The final effect, expressed by (1), is new production resulting from new final demand. However, this can be interpreted as the final result of an iterative process of industry interrelationships, that is:

$$(I-A)^{-1}\ \Delta y = \Delta y + A\Delta y + A^2\Delta y + A^3\Delta y + \ldots\ldots \quad (2)$$

Equation (2) indicates the initial rise in total output stimulated by Δy. However, for Δy to occur, an additional quantity A Δy is necessary, and is used as intermediate consumption to satisfy Δy. But to produce AΔy also requires producing more AΔy, and thus successively. Therefore, (2) represents the change in total product required to meet a final demand of Δy.

In the context of the multiplier, the Leontief inverse matrix makes it possible to examine the effects of an increase in final demand on the rest of the economy, distinguishing two kinds of effects:

- One direct, which is the immediate result of a change in final demand, which generates a change of the same magnitude in the supply of the product and is reflected in the fact that the elements in the Leontief inverse matrix diagonal are always larger than or equal to the unit.

- Another indirect, which occurs because when direct effects have occurred, demand for inputs will generate additional production, which will likewise translate into further demand for new inputs.

As in the previous example, in table 3.10 a single unit increases in the final demand for the Agriculture and forestry industry leads to a 1.10 unit rise in the same industry in 1996, 1.16 units rise in 2003. One unit is to satisfy final demand and the rest is in response to greater intermediate demand from those industries that increased their production by the magnitude expressed in the first column of the matrix $(I-A)^{-1}$, which went to intermediate consumption by the agriculture and forestry industry to boost production. Therefore, the total of the first column (1.64 in 1996, and 1.80 in 2003) shows the rise in total output of the economy in response to an addition unit of final demand for Agriculture and forestry, which breaks down into:

- One unit of final demand for an agriculture and forestry product (1.00).

- The entry of the diagonal minus one to satisfy intermediate demand for agriculture and forestry products from industries increasing their production of inputs for use by the agricultural-forestry industry (0.10).

- The production increase in these other industries is shown in the first column, except for the main diagonal (which is equal to 0.54 = 1.64 - 1.10).

As the last line in table 3.10 reveals, all industries boosted direct and indirect production in response to a single unit increase in final demand. The reason lies mainly in the direct coefficients. The direct coefficient matrix in table 3.9 reveals this effect. In the column representing the total or sum of coefficients in columns, the value went from 0.36 in 1996 to 0.39 in 2003. There, all industries except public administration saw the ratio of intermediate inputs to

production rise. This means that the ratio between primary inputs and imports to production declined. However, as the imported inputs coefficient rose, the most significant decline affected value added to production, which fell from 53.2% in 1996 to 49.2% in 2003.

Note also that the effects on production of an increase in demand assume idle capacity sufficient to adjust quantities without changing prices. The rise in imports, which are assumed to be complementary and not substitutes, will take place proportionately to the ratio for intermediate goods imports to GO and final goods imports to the type of final expenditure.

TABLE 3.10
Leontief inverse matrix,[8] 1996 and 2003
Assumption: fixed structure of sales by product

	Agriculture and forestry	Capture fishery	Mining	Manufacturing	Electricity, gas and water	Construction	Wholesale and retail trade, hotels and restaurants	Transportation and communications	Financial intermediation and business services	Owner-occupied dwellings	Personal and social services	Public administration
1996: $(I-A)^{-1}$												
Agriculture and forestry	1.10	0.03	0.01	0.11	0.01	0.03	0.03	0.02	0.01	0.00	0.01	0.01
Capture fishery	0.01	1.08	0.01	0.03	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Mining	0.02	0.01	1.12	0.02	0.03	0.03	0.01	0.01	0.00	0.00	0.00	0.00
Manufacturing	0.24	0.32	0.12	1.23	0.09	0.33	0.17	0.19	0.09	0.03	0.09	0.09
Electricity, gas and water	0.03	0.02	0.09	0.04	1.41	0.02	0.04	0.02	0.02	0.01	0.02	0.05
Construcction	0.00	0.00	0.01	0.01	0.02	1.00	0.01	0.01	0.02	0.09	0.01	0.04
Wholesale and retail trade, hotels and restaurants	0.08	0.07	0.07	0.07	0.03	0.08	1.08	0.11	0.04	0.01	0.04	0.05
Transportation and communications	0.06	0.06	0.07	0.07	0.02	0.04	0.16	1.11	0.05	0.00	0.03	0.04
Financial intermediation and business services	0.10	0.09	0.13	0.12	0.11	0.09	0.19	0.11	1.15	0.01	0.07	0.10
Owner-occupied dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Personal and social services	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.00	1.03	0.03
Public administration	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.00
Total	1.64	1.69	1.62	1.72	1.73	1.64	1.72	1.61	1.43	1.16	1.31	1.43
2003: $(I-A)^{-1}$												
Agriculture and forestry	1.16	0.04	0.01	0.12	0.00	0.03	0.02	0.01	0.01	0.01	0.01	0.01
Capture fishery	0.00	1.03	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Mining	0.02	0.02	1.12	0.03	0.00	0.04	0.01	0.01	0.01	0.01	0.00	0.01
Manufacturing	0.26	0.45	0.15	1.25	0.05	0.32	0.16	0.14	0.08	0.07	0.08	0.09
Electricity, gas and water	0.02	0.02	0.09	0.03	1.52	0.02	0.03	0.01	0.01	0.02	0.02	0.04
Construction	0.00	0.00	0.00	0.00	0.01	1.00	0.01	0.00	0.01	0.15	0.01	0.02
Wholesale and retail trade, hotels and restaurants	0.11	0.08	0.06	0.09	0.02	0.08	1.08	0.09	0.05	0.02	0.05	0.04
Transportation and communications	0.07	0.07	0.08	0.09	0.07	0.06	0.19	1.17	0.06	0.01	0.04	0.05
Financial intermediation and business services	0.13	0.15	0.18	0.14	0.14	0.16	0.25	0.15	1.19	0.04	0.11	0.12
Owner-occupied dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Personal and social services0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.03	0.00	1.05	0.05	
Public administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Total	1.80	1.87	1.71	1.78	1.82	1.74	1.78	1.62	1.45	1.33	1.39	1.44
Difference 2003 - 1996: $\Delta(I-A)^{-1}$												
Agriculture and forestry	0.07	0.01	0.00	0.01	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00
Capture fishery	-0.01	-0.05	0.00	-0.01	0.00	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.00
Mining	0.00	0.01	0.00	0.01	-0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	0.03	0.13	0.03	0.01	-0.04	-0.01	-0.02	-0.05	-0.01	0.04	-0.01	0.00
Electricity, gas and water	0.00	0.00	0.00	0.00	0.11	0.00	-0.01	-0.01	-0.01	0.01	0.00	0.00
Construction	0.00	0.00	0.00	0.00	-0.02	0.00	0.01	0.00	0.00	0.07	0.00	-0.02
Wholesale and retail trade, hotels and restaurants	0.04	0.01	-0.01	0.02	0.00	0.00	0.00	-0.02	0.02	0.01	0.01	-0.01
Transportation and communications	0.01	0.01	0.01	0.02	0.04	0.02	0.03	0.06	0.01	0.01	0.01	0.00
Financial intermediation and business services	0.03	0.06	0.05	0.02	0.03	0.07	0.06	0.04	0.04	0.03	0.04	0.02
Owner-occupied dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal and social services0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.03	0.02	
Public administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.16	0.18	0.09	0.05	0.09	0.10	0.06	0.01	0.02	0.17	0.08	0.00

[8]/ Of domestic IOM, at basic price, industry by industry.

Appendix 3.1

This appendix presents examples of the preparation of input-output matrices,[9] as per the assumptions outlined in this chapter.

Example 1. Preparation of the product-by-product matrix.

The following table shows the supply-use tables for a simplified economy, offering three types of products: agricultural, manufacturing type PM1 and manufacturing type PM2.

TABLE 3.11
Supply-use tables

	Supply table			Use table			
Product/Industry	Agriculture	Manufacturing	Total	Agriculture	Manufacturing	Final demand	Total
Agricultural	130		130	0	80	50	130
Manufacturing	20		220	60	30	130	220
PM1	20	60	80	30	30	20	80
PM2		140	140	30	-	110	140
Wages				60	20		80
Surplus				30	70		100
Total	150	200		150	200	180	

Manufactured good PM1 is produced by industry (main production main by 60) and by the agricultural industry (secondary production by 20).

Using the technology-product assumption, the production of 20 units of PM1 by agriculture is assumed to take place within the same average cost structure as manufacturing. Therefore, when secondary production is moved to where it becomes a main item within the supply table, the costs of producing PM1 are subtracted from the cost structure of agriculture in the use table (given that 20 is 10% of 200, the costs of producing 20 units will be 10% of the total manufacturing cost structure). In this transformation, the composition of the use of manufactured products plays no role and any value can be used, as the table illustrates with an X.

TABLE 3.12
Transfer table
Assumption: technology-product

	Supply table			Use table			
Product/Industry	Agriculture	Manufacturing	Total	Agriculture	Manufacturing	Final demand	Total
Agricultural	0	0	0	-8	8	0	0
Manufacturing	-20	20	0	-3	3	0	0
PM1				X	X	0	0
PM2				X	X	0	0
Wages				-2	2		0
Surplus				-7	7		0
Total	-20	20		-20	20	0	

[9]/ Examples based on Thage (2005).

Finally, the result will be a symmetrical product-by-product table, with no elements outside the diagonal.

TABLE 3.13
Product by product table
Assumption: technology-product

	Supply table			Use table			
Product/Industry	Agriculture	Manufacturing	Total	Agriculture	Manufacturing	Final demand	Total
Agriculture	130	0	130	-8	88	50	130
Manufacturing	0	220	220	57	33	130	220
PM1		80	80	X	X	-20	-80
PM2		140	140	X	X	-110	-140
Wages				58	22		80
Surplus				23	77		100
Total	130	220		130	220		

Now, based on the technology-industry assumption, the transformation table would become the following:

TABLE 3.14
Transfer table
Assumption: technology-industry

	Supply table			Use table			
Product/Industry	Agriculture	Manufacturing	Total	Agriculture	Manufacturing	Final demand	Total
Agriculture	0	0	0	0	0	0	0
Manufacturing	-20	20	0	-8	8	0	0
PM1				X	X	0	
PM2				X	X	0	
Wages				-8	8		0
Surplus				-4	4		0
Total	-20	20		-20	20	0	

Given the technology-industry hypothesis, the inputs necessary for agriculture to produce PM1 would be given by its own average cost structure, which in no case would give rise to negative records.

In preparing these industry-by-industry IOM tables, assumptions about the structure of sales must be made, since market breakdowns that do not include assumptions about production technology are transferred (Thage, 2005). One possibility is to assume a fixed structure of sales by product, and the other is to assume a fixed structure of sales by industry.

The first hypothesis involves an identical horizontal assumption for each product, regardless of the producing industry, that is, each product is sold by different industries within a certain structure of sales. Each row of the supply table is subdivided in proportion to how it is sold by each industry. Meanwhile, in the use table, it is assumed that each product was purchased within the same structure. Thus for example, if a manufactured product is produced 20/80 by agriculture and manufacturing, respectively, then the make matrix is divided into two rows for this product: 20% for agriculture and 80% for manufacturing. Similarly, in the use matrix it is assumed that of total inputs, 20% came from the agricultural industry and 80% from manufacturing. This transformation involves only divisions and addition of values of goods on offer.

If the hypothesis of a fixed structure of sales per industry is accepted, then the vertical distribution will be identical. The column will indicate how each product offered by an industry is acquired by other industries (rows). It is important

to emphasize that arguing for this assumption is difficult, because product users or purchasers will be precisely those industries producing the same goods. The only reason this alternative is presented is to give consistency to the method used to prepare symmetrical matrices, by presenting all possible options (Thage, 2002). Moreover, applying the assumption of fixed sales structure by industry can generate negative values for which there is no point in seeking economic explanations, since the base assumptions are questionable.

Example 2. Preparation of the industry-by-industry matrix.

In the same simplified economy presented in table 3.11, the supply consists of three products: agricultural, manufacturing type PM1 and manufacturing type PM2, and industry-by-industry matrices are prepared.

TABLE 3.15
Supply-use tables

	Supply table			Use table			
Product/Industry	Agriculture	Manufacturing	Total	Agriculture	Manufacturing	Final demand	Total
Agriculture	130		130	0	80	50	130
Manufacturing	20	200	220	60	30	130	220
PM1	20	60	80	30	30	20	80
PM2		140	140	30	-	110	140
Wages				60	20		80
Surplus				30	70		100
Total	150	200		150	200	180	

Given the hypothesis of a fixed structure of sales by product, the first step is to divide table rows in proportion to the supply of each input. Since 25% of product PM1 comes from agriculture and 75% from manufacturing, it will therefore be assumed that inputs were purchased in the same proportion from the different suppliers.

TABLE 3.16
Subdivision of the supply of PM1
Assumption: fixed sales by product

	Supply table			Use table			
Product/Industry	Agriculture	Manufacturing	Total	Agriculture	Manufacturing	Final demand	Total
Agriculture	130		130	0	80	50	130
Manufacturing				0			
Agriculture PM1	20		20	7.5	7.5	5	20
Manufacturing PM1		60	60	22.5	22.5	15	60
Manufacturing PM2		140	140	30	-	110	140
Wages							
Surplus							
Total	150	200					

Therefore, the value of products offered by each industry is added to the supply industry in each industry's main production cell. At the same time, in the use table inputs are grouped into the cells for which each industry is the supplier.

TABLE 3.17
Industry-by-industry table
Assumption: fixed sales by product

	Supply table			Use table			
Product/Industry	Agriculture	Manufacturing	Total	Agriculture	Manufacturing	Final demand	Total
Agriculture	150		150	0 + 7.5= 7.5	80+7.5=87.5	50+5=55	130+20=150
Manufacturing		200	200	22.5+30=52.5	22.5+0=22.5	15+110=125	220-20=200
Wages				60	20		80
Surplus				30	70		100
Total	150	200		150	200	180	

Now, assuming that the structure of sales if fixed by industry, the transformation table would be:

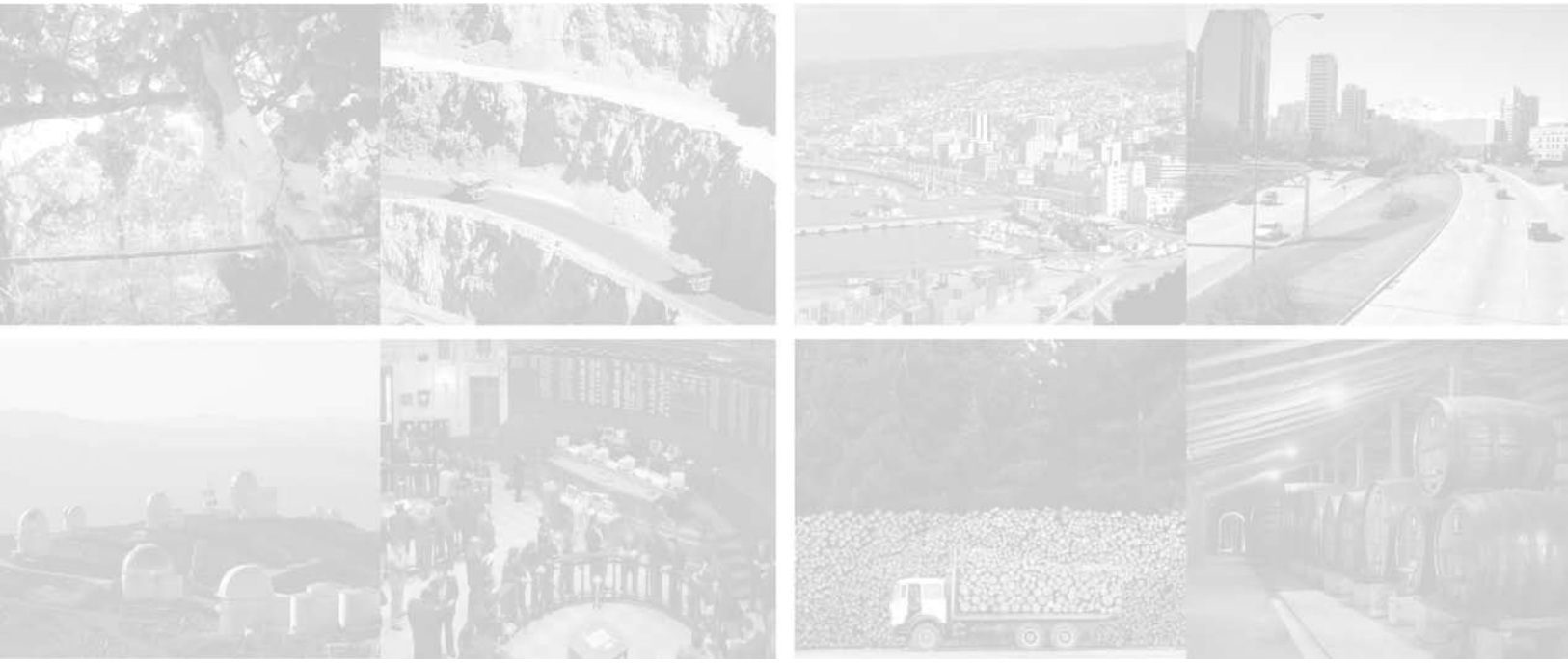
TABLE 3.18
Transformation table
Assumption: fixed sales by industry

	Supply table			Use table			
Product/Industry	Agriculture	Manufacturing	Total	Agriculture	Manufacturing	Final demand	Total
Agriculture	20	0	0	55	2.7	11.8	0
Manufacturing	0	-20	0	-20-55	20-2.7	-11.8	0
Wages							0
Surplus							
Total	20	-20		-20	20	0	0

TABLE 3.19
Industry-by-industry table
Assumption: fixed sales by industry

	Supply table			Use table			
Product/Industry	Agriculture	Manufacturing	Total	Agriculture	Manufacturing	Final demand	Total
Agriculture	150	0	150	5.5	82.7	61.8	150
Manufacturing	0	200	200	54.5	27.3	118.2	200
Wages				60	20		80
Surplus				30	70		100
Total	150	200		150	200	180	

4. GDP by industry: sources and methods



4. GDP by industry: sources and methods

This chapter examines the sources and methods used to prepare production accounts for each industry, along with the variables used in supply-use tables by product, for the 2003 benchmark compilation. Part one describes the general data collection process, information sources and methods available. Their main characteristics, sources and methods used in benchmark compilation are then presented for each industry.

4.1. Data gathering

The data gathering process that goes into building supply and use of goods and service tables involves the following stages:

i) **Data gathering from information sources.** This involves collecting and organizing information from different industries and/or products, by original classifications and formats. This data may involve samples or the universe. At the end of this stage, primary data is available to prepare the production account. This information may come from economic surveys, financial statements, administrative registers or other statistics.

ii) **Data classification.** This involves sorting the data according to the nomenclature used in national accounts, to homogenize and normalize information about production and cost structures so that it can be used to prepare the supply-use tables (SUT).

iii) **Analysis of industrial data.** This involves validating, cleaning, adjusting, correcting and entering basic information according to a range of criteria for consistency. For example, at this stage, input items and records are reclassified. This stage also involves comparing data from different sources.

iv) **Preparation of production accounts.** This involves obtaining production, intermediate consumption and value added, to the required degree of detail, for this universe. Where the information is from a sample, it must be applied to the universe, normally through the tax-related information, employment or other physical production data values and other complementary data. Industries with complete information are estimated by aggregating units.

The data gathering stages, from the primary data to the provisionally balanced production account, is the same for the benchmark year and for the estimated compilation years. However, the number of industries to be examined within each and decisions made vary substantially. For the estimated compilation year, the number of sources used is smaller, focusing mainly on production and intermediate consumption totals by industry. In contrast, for the benchmark year more detail is required at the product level for each variable, which involves an enormous volume of information and more detailed work at each stage, especially classification and analysis, given the greater validating of data and items for intermediate consumption and production destination.

4.2. Information sources

Information sources used in the benchmark compilation process for 2003 included: administrative registers (tax data, customs records, and public budget statements), economic surveys and case studies, company financial statements, yearbooks and statistical reports, and other statistics.

i) Administrative registers

Table 4.1 shows the main administrative registers used in the 2003 benchmark year.

TABLE 4.1
Administrative registers

Information	Source
Value added tax, VAT (form 29)	Internal revenue SII
Income statement (form 22)	SII
Wage statement (form 1887)	SII
Customs records	Chilean customs service (*Servicio Nacional de Aduanas*)
Fiscal income reports	National treasury (*Tesorería General de la República*)
Budget statements	Chile's national comptroller's office (*Contraloría General de la República*, CGR)

Tax data provided by internal revenue (*Servicio de Impuestos Internos, SII*) for national accounts is aggregate and nameless, to maintain statistical secrecy and confidentiality. As Table 4.1 reveals, the 2003 benchmark compilation used information from:

- Value added tax (VAT). This registry provided 15 significant variables per month, industry, type of legally constituted body and ownership.
- Income tax. Information was classified according to industry, institutional sector and legally constituted body, and 21 national accounts proxy variables were analyzed.
- Wages paid by employers to dependent workers.

Foreign trade figures went into preparing imported supply matrices and final consumption, intermediate and capital goods use, along with export column vectors.

Government accounting made possible a complete analysis of the items involved in government units´ budgetary planning and implementation. This involved examining current income and expenditure flows, capital and balance sheets at the central government, municipal government, decentralized and social security institutions. Thus, the set of service production accounts for public administration and institutional government accounts were completed.

ii) Economic surveys

Economic surveys are applied to different industries (table 4.2) by the National Statistics Bureau (*Instituto Nacional de Estadísticas*), the Central Bank of Chile or external consultants. The latter covered construction (housing and non-housing, and civil engineering), agriculture (agriculture, fruit and livestock) and freight and passenger transport by road.

The sample of informing establishments and/or companies for economic surveys used in the 2003 benchmark compilation was expanded to strengthen measures in some more dynamic industries with less statistical coverage. Thus, the sample reached some 25,000 units, distributed as per table 4.2.

TABLE 4.2
Inventory of surveys and case studies

Industry	Total establishments	Body responsible
1 Agriculture and fruit farming	2,280	External consultants
2 Livestock	533	External consultants
3 Mining	42	Central Bank
4 Fishing	131	Central Bank
5 Manufacturing	5,118	National Statistics Bureau
6 Energy	193	Central Bank
7 Construction	925	External consultants and Central Bank
8 Wholesale and retail trade	3,965	National Statistics Bureau
9 Wholesale and retail trade margins	4,936	National Statistics Bureau
10 Restaurants and hotels	520	National Statistics Bureau
11 Transportation	1,067	External consultants and Central Bank
12 Comunications	90	Central Bank
13 Education	641	Central Bank
14 Private health	68	Central Bank
15 Other services	2,110	National Statistics Bureau
16 Small business	2,226	National Statistics Bureau
17 Government	59	Central Bank
Total units processed	24,916	

iii) Financial statements

In the 2003 benchmark compilation were processed around 3300 individual company financial statements from industries detailed in Table 4.3.

TABLE 4.3
Financial statements processed by industry

Industry	Total
1 Mining	38
2 Fishing	89
3 Manufacturing	600
4 Energy	15
5 Wholesale and retail trade	200
6 Restaurants and hotels	100
7 Transportation	89
8 Communications	17
9 Education	330
10 Private health	71
11 Other services	1,013
12 Non-financial corporations	450
13 Financial companies	270
General total	3,282

For non-financial privately and publicly owned companies, and financial companies with standard accounting information available, integrated industry institutional accounts were prepared (production, income and expenditure accounts, accumulation and financial accounts). To do so, individual company financial statements were processed.

iv) Yearbooks and statistical reports

Yearbooks and statistical reports for different industries, published regularly in Chile, form the basis for information included in the benchmark compilation. Yearbooks include one for the fishery industry, prepared by the government service responsible (*Servicio Nacional de Pesca, Sernapesca*) and mining (*Servicio Nacional de Geología y Minería, Sernageomín*). Statistical reports include the monthly bulletin from the national forestry institute (Instituto Forestal de Chile, Infor) and the health fund report (*Fondo Nacional de Salud, Fonasa*). The National Statistics Bureau generates yearbooks and reports from different industries such as agriculture, tourism, the wholesale and retail trade and services, and small business. Finally, another source is based on the national socio-economic survey (*Encuesta de Caracterización Socioeconómica, Casén*) in the planning ministry (*Ministerio de Planificación y Cooperación, Mideplán*) and periodic reports on employment and income prepared by the National Statistics Bureau.

v) Other statistics

Regularly published economic statistics include volumes and prices used to measure and compare some industries. Price statistics include the Consumer Price Index (CPI) and the Wholesale Price Index (WPI). For agriculture, input prices come from several sources.

All sources are subject to bias or statistical error (Penneck *et al.*, 1999). For example, surveys may be affected by sampling error, when they don't include all relevant units necessary to the measure. Similarly, statistics on prices and quantities and administrative registers are subject to statistical bias, due to incomplete coverage, lack of response, errors and under-declaration, among others. Thus, integration is essential to national accounts: grouping data from a wide range of sources so they provide a coherent picture of the economy.

4.3. Compilation methods

Compilation methods used to prepare supply-use tables depend on the coverage, quality and availability of information. In the 2003 benchmark compilation, product and industry methods were used.

i) The product method

This method uses data on production and product supply to determine the universe, measuring price multiplied by quantity.

Using the production levels determined by this method, cost structures based on estimated production functions were estimated. The breakdown of the cost structure made it possible to prepare intermediate consumption and value added (wages, taxes and gross surplus) component arrays. Likewise, the destination of production was estimated at the product level (intermediate sales, household consumption, gross fixed capital formation and exports).

This approach was applied for lack of data for companies or establishments producing goods and services.[1]

[1]/ Generally, basic information came from yearbooks and statistical reports, with this method used for the following industries: agriculture and forestry, fishing, construction, owner-occupied dwellings.

ii) Industry method

This approach uses accounting data from company financial statements, economic surveys or tax data, to determine the universe.

For the 2003 benchmark compilation, two variations on this method were used:

Industry census: The universe was the result of aggregating production accounts and SUT for all production units in the industry. This method was used when information from all companies in the industry was available, specifically in mining; electricity, gas and water; communications; public administration; financial services, and part of manufacturing.

Industry sample and projected universe: In this case, a sample of companies was available, and this structure was expanded to define the universe. This was used in the business and personal services industries and in the rest of manufacturing. The universe was expanded using tax data.

The method used for each industry[2] is presented in table 4.4.

TABLE 4.4
Industry method & product method

Industry	Industry method	Industry by census	by sample
Agriculture and forestry	X		
Capture fishery and algae	X		
Mining		X	
Manufacturing	X	X	X
Electricity, gas and water		X	
Construction	X		
Wholesale and retail trade, hotels and restaurants			X
Transportation	X	X	X
Communications		X	
Financial services		X	
Real estate industries			X
Business services			X
Owner-occupied dwellings	X		
Public administration		X	
Education, health and other services		X	X

4.4. Sources and methods by industry

A description of sources and methods used to prepare industry production accounts for the 2003 benchmark compilation follows.

[2]/ For those industries using more than one method to estimate the production account, calculations were done for subsectors.

A. Agriculture and forestry

A.1. Background

The agriculture and forestry industry consists of the following activities: crop production, fruit farming, animal production and forestry. Crop production includes non-perennial crops, vegetables and forage, and investment in perennial forage for livestock. Fruit farming includes the production of fresh fruit and wine grapes from industrial and craft sources. Plant propagation (fruit and wine) and investment in their maintenance until they can be commercialized are also included. The animal production activity includes the production chain from livestock rising through realization of profit from animals, raw milk and eggs, among other products. It also contains investment in current livestock and capital. Forestry ranges from the commercial harvesting of trees to the production of logs on-site. It also includes the gathering of non-cultivated crops and the production of firewood and coal. It also includes forestry nurseries, replanting, pruning and maintenance of artificial forests until harvesting. This data set also includes for the first time a value for the natural growth of planted forests.

This industry's main characteristics influencing its measures include: i) lack of accounting data (presumed income) and structural surveys, ii) widely dispersed producers,[3] iii) most operations produce goods classified in different industries, iv) the duration of the productive process for the crop and fruit activity goes beyond a single calendar year (costs distributed over two periods), v) seasonal nature of industrial production, and vi) the livestock (cattle) and forestry production require more than a calendar year to complete their productive process.

A.2. Information sources

The approach to data collection was based on developing four studies, three of them external (vegetables, fruit and livestock). The sample for the latter was defined using the 1997 agricultural census (*Censo Nacional Agropecuario*, CNA), and a two-stage, stratified sample (homogeneous zones and producer size) was used in the design.

Studies for the vegetable, fruit and animal production activities,[4] provided data on the main products per region: technical files for each producer type (quantity, price and season during which inputs are applied); production (area, yield, destination), and producer and purchaser prices (sales channels and margins). The three studies applied similar methods with minor variations. Thus, once the species was defined, regions were chosen for study based on outputs. For animal production, surveys were done for meat and dairy livestock, and case studies for other species, given the small number of firms involved in raising poultry and pigs. For the forestry industry, based on the Infor study the area was estimated by age, region and planted forests (Monterrey pine and eucalyptus) to measure inventory change. Relative prices for products and inputs were also updated.

To determine the universe, the different sources of information available were used, and estimates based on indirect information. For agricultural production, information about traditional non-perennial crops (National Statistics Bureau) was used, along with estimates from other bodies, based on indirect figures; for the fruit activity, the area planted for fruit (*Centro de Investigación de Recursos Naturales*, Cirén) and vineyards (*Servicio Agrícola y Ganadero*, SAG); for the livestock production activity, models based on cattle mass were applicable using indirect information, along with information from slaughterhouses (National Statistics Bureau), a survey of poultry and pigs (National Statistics Bureau) and milk received in industrial plants (*Oficina de Estudios y Políticas Agrarias*, Odepa). Finally, for the forestry industry, production and plantation data was obtained at the national level (Infor) along with additional data to value the inventory change in standing forests.

[3]/ According to the 1997 agricultural yearbook, there are 329,000 operations in a total area of 5.5 million hectares, plus another 12.1 mn hectares natural meadows.

[4]/ Studies carried out by external consultants.

Studies used as the basis for calculating the four industries are part of a benchmark compilation; in contrast, statistics used to project onto the entire universe were generally annual in nature.

A.3. Compilation methods

Gross output: The product method was used, which yielded the value of production as a function of quantities produced and the respective prices. For all four industries, the gross output was obtained by adding up destinations. For exports, census data on foreign trade was available. In the specific case of intermediate sales, the main destinations for agro-industrial products were identified in line with production chains, which were separately estimated, with minor demand included in an aggregate. For final consumption, coefficients estimated in studies by external consultants were used, and compared against a battery of indirect indicators. Investment was estimated using data for each activity.

Agricultural production is based on the sown area, by region and for the three producer types (by size and technological level). In the case of vegetables and foraging, areas and yields are estimated using indirect figures. Destination coefficients and prices were provided by the external study.

For fruit production, especially fruit orchards, information on hectares catalogued by the Cirén fruit studies was used. These were updated and weighted using yield coefficients for each species, according to the plantation age and geographical region. These levels were then compared to export and domestic demand figures, for both fresh and processed fruit, which facilitated the supply-use balance. For vineyards, information from the SAG vineyard inventory was used with a grape-wine transformation coefficient to determine production. Destination coefficients and prices were provided by the external study.

For the animal production activity production was estimated by producer type and producer and purchasers' prices, while measures for processed products were used for poultry and pigs. Moreover, using a model for growth in mass, inventory change was estimated, along with associated costs in proportion to the number of animals, according to their stage of development. Destination coefficients and prices were provided by the external study.

For forestry, investment and operations are primarily in the hands of large companies that cover the whole production chain, from tree planting to the sale of manufactured products. In this case, cost structures were updated using different technology levels for each species, mainly pine and eucalyptus, and the destination of logs – chips, boards and pulp. Moreover, there were innovations made to the 1996 benchmark, including an estimate for natural growth of trees (area and prices by age, region and species), whose production constitutes inventory change to artificial forests, according to the 1993 National Accounts System (SNA93). Prices applied came straight from companies.

Intermediate consumption: cost structures came from different studies. In the case of the vegetable, fruit and forestry activities, the unit of analysis was the sown or planted hectare, and in the case of livestock, the animal unit. In agriculture, cost structures by product and region were used. In the fruit industry, the study unit for cost functions was the species, for lack of expansion factors applicable to the universe of different varieties. For forestry, cost functions were updated by species, region and destination, based on previous studies. These estimates used handling typologies in line with the characteristics of each product.

An analysis of results focused on the main inputs from a technical and economic standpoint. First, technical profiles were obtained from the statistical base and analyzed by experts in the consulting team. Then, an aggregate analysis of the main inputs was conducted at the activity level. Finally, a more detailed analysis of the consistency of the cost function at the industry level was conducted at the balancing stage.

Value added: Wages and salaries were estimated as a function of person – day needs in different industries, based on forms developed by the studies. Because of this, employment distinguishes between dependent and independent labor. For comparison, data from the 1997 CNA was used, along with the National Statistics Bureau employment survey.

Taxes on production were obtained from indirect cost estimates, rounded out using tax revenues.

Wholesale and retail trade margins: The wholesale and retail trade margins for agricultural and forestry products were the implicit result of the double producer- purchaser valuation developed by measuring production at the property and final use points. The producer price was defined by convention as the most common delivery point for each product, and in some cases coincided with the price on the farm. Similarly, the purchaser price was defined according to the different options available at the wholesale, regional fair, consumer or export.

Given that in practice the portion of exports made directly by producers and through the wholesale and retail trade, fluctuates over time, the simplifying assumption that all exports form part of trade, used in 1996 benchmark compilation, was maintained.

Agriculture and forestry
(millions of 2003 pesos))

PRODUCT MARKET

SUPPLY	
Domestic supply	
Rest of agriculture and forestry	1,833,187
Fruit farming	1,079,059
Agriculture	992,731
Rest of services	903
Education	1
Total domestic supply. Basic price	3,905,880
Valued added tax	134,864
Trade Margin	1,337,874
Total domestic supply. Purchaser price	5,378,618
Imported supply	
Value c.i.f.	286,005
Import duties	6,574
Total imported supply. Basic price	292,579
Value added tax	2,940
Trade Margin	26,630
Total imported supply. Purchaser price	322,149
TOTAL SUPPLY. Purchaser price	**5,700,766**

DEMAND	
Intermediate demand	
Manufacture of food, beverages and tobacco	1,815,832
Rest of agriculture and forestry	459,670
Manufacture of wood and furniture	230,958
Agriculture	99,512
Manufacture of paper and printing	80,027
Restaurants and hotels	78,690
Manufacture of textiles, wearing apparel, and leather	28,207
Construction	22,659
Rest of services	15,111
Manufacture of chemicals, oil, rubber and plastic	13,779
Other industries	23,232
Total intermediate demand. Purchaser price	2,867,676
Final demand	
Consumption	1,194,582
Gross fixed capital formation	112,566
Inventory change	45,741
Exports of goods and services	1,480,201
Total final demand. Purchaser price	2,833,090
TOTAL DEMAND. Purchaser price	**5,700,766**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Chemical, oil, rubber and plastic	333,224	282,703	615,927
Food, beverages and tobacco	338,495	12,363	350,858
Rest of agricultural	317,584	1,875	319,459
Agricultural	212,240	34,114	246,355
Business services	220,000	0	220,000
Transportation	83,339	0	83,339
Wholesale and retail trade	56,609	56	56,665
Metallic products, machinery and equipment	28,878	9,761	38,640
Electricity, gas and water	31,708	0	31,708
Financial services	17,535	854	18,389
Wood and furniture	12,897	119	13,016
Rest of mining	11,592	262	11,854
Rest of products	54,363	1,972	56,335
Total intermediate consumption	1,718,465	344,080	2,062,545

Value added

Components	
Wages	708,992
Taxes	57,058
Subsidies	-3,266
Gross Surplus	1,079,647
Total value added	1,842,431
Total output value added. Producer price	3,904,976
Total gross output. Basic price	3,904,976

B. Capture fishery and aquaculture

B.1. Background

For this industry, the capture of fish and shellfish grown naturally or in cultivation, algae gathering and aquaculture were measured.

Capture fishery involves three activities: industrial fishing, offshore fishing, and factory ships. Industrial fishing is done by boats over 18 meters in length or over 50 gross registered tonnages (GRT).[5] Normally, the fleet is vertically integrated, providing raw materials to a plant. Offshore fishing consists mainly of self-employed fishers working on boats up to 18 meters long with a storage capacity of up to 50 grt. Finally, factory ships work in two integrated areas: both capturing the fish and processing them into frozen fish or fishmeal on board.

The algae gathering activity involves harvesting natural and artificial areas through processing, which generally involves drying.

The aquaculture industry consists of artificial nurseries where fish and shellfish are grown. This may involve one or all the stages involved in the biological process leading up to the harvest. In Chile, intensive aquaculture is carried out, which involves controlling as many production, growth and yield factors as possible.

B.2. Information sources

Basic information sources include statistical yearbooks, administrative registers, financial reports and figures direct from firms, and special surveys.

For the capture fishery activity the year book (*Anuario Estadístico de Pesca*) produced by the government agency (*Sernapesca*) was used to estimate capture fishery production with data on volumes of fish and shellfish unloaded, along with production from the main industrial lines. For export accounts, registers from the national customs service were used. In the specific case of industrial fish, data from a national industry survey (*Encuesta Nacional Industrial Anual, ENIA*), was used to identify figures by item for intermediate consumption and value added components,[6] along with information from financial statements, data direct from companies, and a purchase of raw materials survey. For offshore fishing and the gathering of natural algae and aquaculture, data from a special survey of beach prices, prepared by Sernapesca, was used. Moreover, a survey was applied to offshore boats in the main coves and regions, which provided data on the structure of intermediate consumption and value added.

For aquaculture, surveys specific to the benchmark year were used. Two surveys were applied, one of the salmon industry and the other to other aquaculture industries. Data covered volume, outputs, sales and cost structures. Moreover, data from balance sheets and direct data, by item, for companies was used for intermediate and primary inputs. For this industry, information was also used to extrapolate to the universe, and for cross-checking. In the case of the first, trade figures from the national customs service were used, along with data from the undersecretary for fisheries. For cross-checking, information from ENIA was used, along with information from special studies on the capture of specific species at the regional level, and statistics from the Undersecretary of Fisheries, the national fishing association (Sonapesca) and the fisheries institute (*Instituto de Fomento Pesquero*, IFOP).

[5]/ Gross registered tons, the capacity of a merchant ship in units of 100 cubic feet.

[6]/ Data on inputs such as fuel, provisions, maintenance and repairs, and wage information was obtained.

B.3. Compilation methods

Capture fishery and algae

Gross output: The product method was used. Physical shipments by species were assigned a value using prices provided by Sernapesca, IFOP and other sources.

For the activities industrial fishery and factory ships production data from a sampling of companies provided by the ENIA was used. For the latter, direct data from companies and expert opinions were also available, and served as a basis for comparison and extrapolation.

For offshore fishing and other industries whose production goes to both intermediate and final consumption, production was valued according to destination, using information on beach prices and from other sources.

Estimates of wholesale and retail trade margins varied according to the destination of each product. In the case of offshore fishing and other industries whose products go to final consumption, production was valued at beach price and using data from the main points of sale for these products, to obtain both purchaser price and the wholesale and retail trade margin. In the case of products going to intermediate consumption, given the integration between industrial capture fishery and manufacturing, there are no wholesale and retail trade margins.

On secondary production, most was generated by exports of manufactured products from factory ships.

The destination of production was determined using supply hypotheses prepared for the destinations of offshore and industrial capture fishery. These were based on the fishery yearbook, which a posts destination by species delivered to industrial production lines, and was compared to figures for intermediate demand from fishery manufacturing. It was assumed that the main destination of industrial fishing is to supply industry and those species not covered by this demand were assigned to offshore fishery production. In the case of surplus, fresh fish consumption was assigned (mainly to households, restaurants and hotels). Part of algae collection went to external markets, while the rest went mainly to chemical manufacturing, which produces agar and alginates.

Intermediate consumption: In general, for the activities industrial fishery and factory ships, information on the cost structure came from a sampling of companies by the ENIA, direct company data and expert opinions extrapolated to the universe. For offshore fishing and algae gathering data from a Central Bank survey was used to structure costs for a sample of each activity, which were then projected onto the universe using relationships between fish and shellfish captures and algae found by the survey.

Value added: In the case of industrial fishery and factory ships, the value added components were obtained from ENIA data and extrapolated to the universe. In the case of craft fishing and algae, results from the Central Bank survey were used.

Aquaculture

Gross output: The product method was used. For aquaculture, a price weighted by volume harvested was used. This is an integrated industry that includes both the cultivation of species and processing. For the change in product inventory affecting salmon and trout, a model measuring growth in mass was used to estimate monthly stock, by stage of development, which made it easier to distribute production costs, using a weight gain curve and other variables.

Records for volume produced and exported provided by companies were compared to information from Sernapesca's yearbook and the National Customs Service, respectively.

Intermediate consumption: This was identified using information from a Central Bank survey applied to the industry. The main inputs were analyzed separately, including: food, vitamins, packing, medicines and disinfectants, and other chemical products. For example, in the case of fish food – and by cross-checking data on harvests from firms and Sernapesca with fish food production (ENIA) – obtaining a technical coefficient for conversion (food/fish) as a measure for comparison.

Value added: the main value added variables for this industry (wages and taxes on production) were obtained from surveys and financial statements. Sample information was then applied to the universe.

Capture fishery and aquaculture
(millions of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Fishery	1,319,144
Food, beverages and tobacco	2,093
Total domestic supply. Basic price	1,321,236
Valued added tax	15,839
Trade margin	93,631
Total domestic supply. Purchaser price	1,430,707
Imported supply	
Value c.i.f.	2,052
Import duties	118
Total imported supply. Basic price	2,171
Value added tax	4
Trade margin	7
Total imported supply. Purchaser price	2,181
TOTAL SUPPLY. Purchaser price	**1,432,888**

DEMAND	
Intermediate demand	
Manufacture of food, beverages and tobacco	281,090
Fishery	27,739
Restaurants y hotels	19,929
Manufacture of chemicals, oil, rubber and plastic	15,250
Rest of services	1,606
Transportation	1,425
Health	479
Education	190
Manufacture of wood and furniture	120
Rest of manufacturing	45
Rest of industries	26
Total intermediate demand. Purchaser price	347,900
Final demand	
Consumption	138,072
Gross fixed capital formation	
Inventory change	66,033
Exports of goods and services	880,883
Total final demand. Purchaser price	1,084,988
TOTAL DEMAND. Purchaser price	**1,432,888**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Food, beverages and tobacco	362,309	3,326	365,635
Chemical, oil, rubber and plastic	106,872	33,747	140,619
Business services	93,259	0	93,259
Metal products, machinery and equipment	25,729	12,100	37,829
Transportation	29,285	0	29,285
Fishery	27,738	0	27,739
Financial services	17,944	678	18,621
Textile, wearing apparel and leather	676	9,003	9,679
Restaurants and hotels	7,141	0	7,141
Paper and printing	5,836	847	6,683
Wholesale and retail trade	0	6,591	6,591
Education	5,941	0	5,941
Rest of products	12,995	5	12,999
Total intermediate consumption	695,724	66,296	762,020

Value added

Components	
Wages	207,222
Taxes	4,963
Subsidies	-1,388
Gross surplus	416,640
Total value added	627,436
Total output value added. Producer price	1,389,457
Total gross output. Basic price	1,389,457

C. Mining

C.1. Background

According to the definition contained in the International Standard Industrial Classification (ISIC) Revision 3 (Rev 3), the mining industry includes "mining and quarrying," that is, the extraction of minerals in their natural state. Underground and open pit mining is included, along with wells and all complementary industries involved in treating raw minerals for the purpose of commercialization, including grinding, preparation and treatment, generally carried out in the place of extraction or nearby. Processes of grinding, dissecting and treating certain kinds of earth, rocks and minerals that are not carried out in mines or quarries are excluded, as is prospecting for minerals.

In Chile's context, this definition does not reflect the reality of mining companies, which are vertically integrated from ore extraction to the production of manufactured products, such as metals and fertilizers. To do so, Chile's economic classification system (*Clasificador de Actividad Económica, CAE*) includes refining with extractive mining within the overall category. This definition involves a concept more associated with "mining resource" than the geological view of mining.

The mining industry can be subdivided into five activities, according to the main mineral involved: copper, coal, oil and natural gas, iron and other minerals. This last category includes other metals, such as gold and silver, and non-metallic ores (stones, sand, clay, etc.). Copper is the most important, accounting for 85% of this industry's production in 2003.

On the market, the supplier is an integrated producer, whose product is standard and generally sold according to international technical specifications, at a price set by metal exchanges or specialized bodies. Most production is exported and in the case of domestic sales, goes to intermediate use in metallurgy and chemical manufacturing, refining, among others.

The copper industry is concentrated into just ten companies, which account for 87% of production; iron is worked by two companies, and for oil and natural gas the only company is the Empresa Nacional del Petróleo (ENAP). Non-metallic industries and coal mining are more widely dispersed, since most production is done by medium and small producers.

C.2. Information sources

The main information source is the Central Bank's survey of mining companies, complemented by data from balance sheets and/or financial statements. This data offers broad coverage and details regarding cost structures and production destination.

Moreover, for cross-checking, statistics prepared by Sernageomín on mining production were used; along with data on copper production, financial statements, employment data and costs by company, from the mining council (*Consejo Minero*); annual copper statistics (production, sales, exports, prices and employment) from the *Corporación Chilena del Cobre* (Cochilco); the mining company directory, and data on companies offering services to mining, registered in the Chilean mining compendium (*Compendio de la Minería de Chile*); copper and other minerals purchased from small producers registered with the national mining company (*Empresa Nacional de Minería*, ENAMI), and data from the National Statistics Bureau and mining companies reporting to the ENIA.

C.3. Compilation methods

To prepare the production account and the mining SUT the accounting base industry method was used. However, for those industries for which no accounting data was available, the universe was estimated using the product method. The main cases were the following:

- Small-scale copper mining, consisting of many small companies and self-employed miners (pirquineros). Their production was established using their sales to Enami.
- Small-scale coal producers. Their universe was obtained from Sernageomín. The cost structure was determined using samples, and then projecting production data.
- Stones, sand and clay. Production was estimated using demand from construction and some manufacturing industries.

Gross output: This was calculated using two methods: one accounting, sales minus stocks valued as in-process and finished products, and the other establishing a value for physical production at the average sales price. Both cases included production for exports and intermediate sales. Secondary production associated with production was also registered, as occurs with copper mining, which produces a significant amount of molybdenum, gold, silver and sulfuric acid. Other income from rentals, sales of scrap and services to third parties were also included. Significant changes applied during this compilation processes included adding ENAP's Gregorio refinery, and the gross treatment of raw material sales and products in process between establishments and companies. This last decision brought a substantial rise in own consumption within each industry. For example, in copper's case, own consumption applied mainly to Enami (a company with no extractive component, which buys this raw material from third parties).

On production destination, this was prepared using exports, which were cross-checked against balance of payments data; intermediate sales, the main purchasing industries, including manufacturing and agriculture, and inventory change, distinguishing between in-process and finished products.

Intermediate consumption: This was obtained directly from each firm, in great detail, although without distinguishing between domestic and imported inputs.

Value added: This came directly from companies. Wages include all payments by companies to their employees, in money and as benefits, which include housing and health assistance, in copper's case. Taxes on production were cross-checked against government tax data. Gross surplus came from the difference between value added and other components.

Mining
(millions of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Copper	6,820,403
Other mining	1,118,732
Electricity, gas and water	112,098
Manufacture of food, beverages and tobacco	14,951
Manufacture of chemicals, oil, rubber and plastic	3,157
Rest of industries	168
Total domestic supply. Basic price	8,069,509
Valued added tax	13,715
Trade margin	33,101
Total domestic supply. Purchaser price	8,116,325
Imported supply	
Value c.i.f.	2,003,691
Import duties	21,868
Total imported supply. Basic price	2,025,559
Value added tax	4,629
Trade margin	1,971
Total imported supply. Purchaser price	2,032,159
TOTAL SUPPLY. Purchaser price	**10,148,484**

DEMAND	
Intermediate demand	
Manufacture of chemicals, oil, rubber and plastic	1,781,473
Copper	806,173
Base metal industry	265,135
Electricity, gas and water	216,301
Construction	161,096
Manufacture of non-metallic minerals	110,748
Rest of mining	47,924
Manufacture of food, beverages and tobacco	41,121
Manufacture of metallic products, machinery and equipment	14,932
Transportation	12,039
Rest of industries	54,763
Total intermediate demand. Purchaser price	3,511,704
Final demand	
Consumption	81,747
Gross fixed capital formation	
Inventory change	279,780
Exports of goods and services	6,275,254
Total final demand. Purchaser price	6,636,781
TOTAL DEMAND. Purchaser price	**10,148,484**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Business services	980,174	32,872	1,013,046
Copper	752,995	6,400	759,395
Chemical, oil, rubber and plastic	508,152	204,765	712,916
Metallic products, machinery and equipment	232,865	305,148	538,013
Electricity, gas and water	426,457	13,079	439,535
Transportation	340,873	0	340,873
Rest of mining	86,945	7,757	94,701
Financial services	31,026	27,030	58,055
Non-metallic mineral production	30,729	459	31,188
Restaurants and hotels	25,721	0	25,721
Base metals	17,518	6,387	23,905
Wholesale and retail trade	9	13,302	13,311
Rest of products	54,644	4,469	59,113
Total intermediate consumption	3,488,106	621,667	4,109,774

Value added

Components	
Wages	812,552
Taxes	21,076
Subsidies	-91
Gross surplus	3,488,034
Total value added	4,321,571
Total output value added. Producer price	8,431,344
Total gross output. Basic price	8,431,344

D. MANUFACTURING

D.1. Background

Manufacturing groups together several industries whose production units (companies and establishments) transform raw materials into new products. This industry functions between the primary industries (agriculture and forestry, mining and fishing), which normally supply raw materials, and distribution channels (transportation and wholesale and retail trade) which move products to different destinations.

In defining the industry's coverage, the exclusion of some specific industries classified with other industries should be noted. This is the case with primary copper refining, included under mining, and the manufacture and conservation of fish from aquaculture, included under fishing. These definitions reflect the vertical integration of some industries, which makes it difficult to distribute cost structures across extractive and manufacturing industries.

Within manufacturing, a far-ranging set of industries coexists, with different production destinations, forms of industrial organization, technological levels, capital, labor skills and productivity among companies. This is the case with manufacturing: food, textiles, metal-mechanical and chemical. The main characteristics that can be found in the different branches of manufacturing include:

- A wide range of company organization types, including single establishment, multi-unit industrial, with or without horizontal or vertical integration, multi-unit (supra-industrial) and holding companies.
- A small number of companies that dominate specific manufacturing groups, for example, tobacco, sugar, steel, wood pulp, cement and oil refining.
- Atomization of companies in some manufacturing groups. For example, bakeries, apparel, footwear and sawmills, among others.
- Difficulty determining the universe in some industries: slaughter houses, wines, mills, publishers, apparel, laboratories. This reflects outsourcing, integration of company and household (as an institutional agent) and the lack of accounting records, among other factors.

D.2. Information sources

The main source for estimating production and cost structures is the ENIA, done by the National Statistics Bureau. This survey seeks to collect information on factories employing more than 10 persons, as the relevant statistical unit. Information is available for such variables as: operating income and expenditures, inventory change, investment, taxes and subsidies, and employment data. It also includes production and physical sales and values, by product type, and consumption and physical purchases, by type of raw material and main materials. In the case of the multiunits, a module is included for the company's consolidated data.

Data from the small business survey is also used, along with company balance sheets, exports and goods and service imports from the national customs service, statistics on input and product quantities and prices published by specialized bodies, such as Odepa, Sernapesca and Infor, and tax data from SII.

D.3. Compilation methods

Using ENIA data involved a prior stage of analysis and processing of variables. To do so, representative samples of establishments were defined according to the sales they reported.[7]

It was also necessary to make some corrections, for example in the case of vertically integrated companies, imputations and corrections to product transfers between establishments within the same company, input records in balance sheets, value F.O.B. of exports and financial accounting coherency.

Production account

To apply production (main and secondary), cost structures[8] and value added components to the universe, three methods were used:[9]

- Income. This method was used on industries with a large number of small companies, such as bakeries, different foods, sawmills, textiles, apparel, leather, footwear, furniture and metal mechanical industries. To do so, operating income for the activity in form 22 was used, once the consistency of directory classifications was double-checked.

- Product. This method was used primarily for food manufacturing, particularly: slaughterhouses, fish manufacturing, dairy, milling, animal fodder and wines. Total output by product registered in 2003 was used, without identifying the economic agent or industry involved.

- Sum of strata. This method consisted of adding together both strata from the ENIA (sample and non-sample), plus information from microbusinesses and the self-employed, which includes all manufacturing production units employing less than 10 people. This was used mainly in those industries where production is highly concentrated in large firms, such as firms producing oils, pasta, beer, soft drinks, paper, printed matter, basic chemicals, iron and steel.

The results were crosschecked, particularly the main inputs, against primary industries supplying raw materials and their consistency within manufacturing itself was checked in terms of own-inputs.

Information on value added components was validated using data from Form 1887 in the case of wages and salaries, and the government for taxes on production and products, and specific product taxes and subsidies.

Destinations and trade margins

Inventory change due to production and the use of raw materials and materials, was estimated using data from the ENIA. Then, to the same level of detail, exports were assigned, using customs records as sources. Given total output, exports and inventory change for finished products, production for the domestic market was then determined, and assigned to private consumption,[10] intermediate demand or gross fixed capital formation. These destinations were defined according to the type of good, given demand for some of the main intermediate products main. Once production going to the domestic market had been defined (consumption, intermediate and capital) product distribution was estimated, distinguishing between direct sales and goods subject to commercialization, according to analytical criteria (supplier size, for example) and data from previous studies. The application of margins to goods distributed through the wholesale and retail trade was done at a more aggregate product level, which depended on the degree of detail in the wholesale and retail trade margin study.

7/ A mixed sample was selected, as per ISIC, rev. 3, to four digits: deterministic inclusion of 1,881 establishments employing more than 50 persons and/or belonging to multiunits. and random samples of 282 establishments with from 10 to 49 employees.

8/ Cost structures for sole companies operating in their sectors were not extrapolated.

9/ For some highly concentrated sectors, such as tobacco, sugar and oil refining, expanding results was unnecessary.

10/For comparison, the 2003 projection from the family budget survey (EPF) prepared by the National Statistics Bureau in 1996-1997 was used.

Manufacturing
(millions of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Manufacture of food, beverages and tobacco	7,291,179
Manufacture of chemicals, oil, rubber and plastic	5,586,228
Manufacture of paper and printed materials	2,251,711
Manufacture of metallic products, machinery and equipment	1,953,580
Manufacturing of wood and furniture	1,610,997
Rest of industries	3,448,403
Total domestic supply. Basic price	22,142,098
Valued added tax	1,296,405
Specific taxes on fuels and tobacco	824,942
Trade margin	2,730,867
Total domestic supply. Purchaser price	26,994,313
Imported supply	
Value c.i.f.	10,978,967
Import duties	497,125
Total imported supply. Basic price	11,476,092
Value added tax	713,377
Trade margin	4,130,391
Total imported supply. Purchaser price	16,319,860
TOTAL SUPPLY. Purchaser price	**43,314,173**

DEMAND	
Intermediate demand	
Construction	2,631,905
Manufacture of food, beverages and tobacco	2,147,558
Transportation	2,076,711
Manufacture of chemicals, oil, rubber and plastic	1,542,015
Wholesale and retail trade	1,264,482
Copper	1,055,839
Manufacture of metallic products, machinery and equipment	1,054,532
Manufacture of paper and printed matter	862,653
Business services	790,809
Fishery	563,616
Rest of industries	4,870,065
Total intermediate demand. Purchaser price	18,860,184
Final demand	
Consumption	14,543,254
Gross fixed capital formation	3,516,259
Inventory change	98,893
Exports of goods and services	6,295,582
Total final demand. Purchaser price	24,453,989
TOTAL DEMAND. Purchaser price	**43,314,173**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Chemical, oil, rubber and plastic	1,073,654	1,373,599	2,447,253
Rest of mining	324,025	1,804,774	2,128,799
Business services	1,475,468	147	1,475,615
Food, beverages and tobacco	875,085	398,121	1,273,206
Rest of agriculture	1,253,321	12,879	1,266,201
Paper and printed materials	692,544	203,704	896,248
Transportation	866,815	0	866,815
Base metals	478,588	362,162	840,750
Metallic products, machinery and equipment	164,330	484,948	649,279
Agriculture	427,037	220,094	647,131
Textile, wearing apparel and leather	109,105	320,808	429,913
Wood and furniture	314,778	59,383	374,161
Rest of products	1,638,363	339,001	1,977,364
Total intermediate consumption	9,693,114	5,579,621	15,272,735

Value added	
Components	
Wages	2,534,695
Taxes	950,602
Subsidies	-60,731
Gross surplus	4,974,424
Total value added	8,398,990
Total value added	23,671,725
Total output value added. Producer price	824,942
Total gross output. Basic price	22,846,782

E. ELECTRICITY, GAS AND WATER

E.1. Background

This industry's activities are electricity, gas and water. Electricity includes electric power generation, transmission and distribution for residential, industrial and commercial use. Electricity may come from hydro, conventional thermal, geothermal, solar or other sources. The gas activity includes the distribution of gas-based fuels through pipelines for industrial, commercial, residential and other uses.[11] The water activity water includes capture, purification and distribution of drinking water for industrial, commercial, residential and other uses. Moreover, it includes sewage treatment services.

There has been a significant change in the production function for the electric power general activity since the last benchmark. This reflects the inclusion of combined cycle thermal generation centers –whose main input is imported natural gas– which has brought a significant rise in thermoelectric generation compared to hydroelectricity since the previous benchmark measure. For the gas activity, moreover, because domestic companies can only distribute imported natural gas, their production is measured as a distribution margin, an approach that will also be used in the annual compilation of accounts. A noteworthy development in the water activity is the inclusion of new sanitation services, such as sewage treatment.

One characteristic typical of this industry is its sensitivity to changes in economic, weather and technological variables, since these affect the structure of production functions in each activity. The small number of large companies operating in the market and regulations applied by public supervisory bodies make information for each activity more readily available.

E.2. Information sources

The main information source is the Central Bank survey for each activity, which is complemented using data from balance sheets and/or financial statements. This data has extensive coverage and suitable details of cost structures and production destinations.

Information also came from bodies related to the industries, such as the Electrical Dispatch Centers (*Centros de Despacho Económico de Carga*, CDEC-SIC and CDEC-SING), National Energy Commission (*Comisión Nacional de Energía*, CNE), the superintendencies of electricity and fuels (*Superintendencia de Electricidad y Combustibles*, SEC) and Sanitary Services (*Superintendencia de Servicios Sanitarios*, SISS), and data from the National Statistics Bureau.

Additional information came from case studies for each activity, which provided more details on inputs, to the level of breakdown usually used in benchmark compilations, and the entry of missing data.

E.3. Compilation methods

To prepare the production account and the SUT for electricity, gas and water, the industry with accounting base method was used. This made it possible to prepare accounts by company for all three industries. In general, information was available for the whole universe, with additional projections required only for the water activity.[12]

To obtain entry-level data for the main account variables, the case study method was used to sample companies representing each activity. Moreover, this study allowed a redefinition of the gas activity gas, shifting the focus from production to distribution.

[11]/ Transportation of gas-based fuels through gas pipelines is excluded, as it is classified under transportation by pipeline.

[12]/ In this industry, the data was available for 99.5% of companies.

Gross output: To measure the electric power activity, gross treatment of energy and power between industries was maintained.[13] The measure for generating, transmitting, and distributing companies included electricity and power sales, tolls, meter rentals and cut-off and reconnection services, and secondary production such as: sales of materials and coal, rentals and services. The output for the water activity included water sales, supply, sewage treatment and other associated income (installation of drinking water, cut-off and reconnection). For the gas activity, the output included the margin on natural gas distribution, determined as the difference between sales income and costs.

On the supply side, the destination of production was estimated using survey data. For the electric power activity, the main destination was intermediate sales, while water went mainly to household consumption. The product distributed by the gas activity went to both intermediate and household consumption. Specifically, for the electric power distribution activity, data was crosschecked against information from sales for residential use, prepared by the National Statistics Bureau.

Intermediate consumption: This was measured using input and service data associated with production and administrative expenditures provided by surveys, and items were based on industry case studies.

Value added: Wages were obtained directly from survey data. These were compared to financial information for companies. Taxes on production and products were cross-checked against government data and operating data was obtained using residuals.

[13]/ Specifically, the electric power generation subsector sells energy to distributors.

Electricity, gas and water
(millions of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Electricity, gas and water	3,015,872
Manufacture of paper and printed materials	45,433
Manufacture of food, beverages and tobacco	4,181
Transportation	2,063
Manufacturing of wood and furniture	1,353
Rest of industries	1,836
Total domestic supply. Basic price	3,070,738
Valued added tax	172,455
Trade margin	9,579
Total domestic supply. Purchaser price	3,252,773
Imported supply	
Value c.i.f.	30,860
Import duties	130
Total imported supply. Basic price	30,989
Valued added tax	16
Trade margin	
Total imported supply. Purchaser price	31,006
TOTAL SUPPLY. Purchaser price	**3,283,779**

DEMAND	
Intermediate demand	
Electricity, gas and water	1,162,277
Copper	406,589
Public administration	102,981
Wholesale and retail trade	92,966
Manufacture of paper and printed materials	76,709
Manufacture of food, beverages and tobacco	51,315
Business services	48,104
Education	43,795
Manufacture of chemicals, oil, rubber and plastic	38,515
Owner-occupied dwellings	36,756
Rest of industries	327,333
Total intermediate demand. Purchaser price	2,387,340
Final demand	
Consumption	896,439
Gross fixed capital formation	
Inventory change	
Exports of goods and services	
Total final demand. Purchaser price	896,439
TOTAL DEMAND. Purchaser price	**3,283,779**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Electricity, gas and water	1,144,630	17,647	1,162,277
Rest of mining	882	215,419	216,301
Business services	210,827	0	210,827
Transportation	94,018	0	94,018
Financial services	48,542	19,784	68,326
Metallic products, machinery and equipment	9,238	43,325	52,563
Chemical, oil, rubber and plastic	12,426	8,286	20,712
Construction	12,343	0	12,343
Communications	7,269	0	7,269
Paper and printed materials	4,287	595	4,883
Non-metallic mineral production	2,416	439	2,855
Rest of personal services	2,521	0	2,521
Rest of products	7,577	1,496	9,073
Total intermediate consumption	1,556,976	306,990	1,863,966

Value added

Components	
Wages	197,988
Taxes	14,174
Subsidies	-79
Gross surplus	1,249,128
Total value added	1,461,211
Total output value added. Producer price	3,325,178
Total gross output. Basic price	3,325,178

F. CONSTRUCTION

F.1. Background

This industry includes the housing and non-housing building activities, civil engineering, repairs and demolitions.

The building class includes the construction of buildings for residential (household) and non-residential (schools, hospitals, manufacturing, stores and offices, among others), including additional equipment, such as elevators and escalators.

Civil engineering includes non-building (main structure or walls, decks, pavement) construction and in general involves renovations to or expansion of public or private infrastructure. Industries in this category include civil works and the erection of pre-fabricated structures, involved in: road works, mining projects, water projects, irrigation systems, sewerage systems, electric lines, sea and coastal water transport, air transportation, telecommunications, agricultural projects, environmental projects and other non-housing projects, such as parks and sporting facilities.

Repairs include minor disbursements to correct the decline in housing and non-housing goods, and civil engineering, to maintain them in suitable working order. The demolitions activity involves works to knock down existing buildings, thereby eliminating them from capital stock.

Construction and civil engineering form part of gross fixed capital formation. In contrast, industries involving repairs and demolition are distributed across different industries that must absorb the costs involved (in particular, construction includes demolitions as an input for its activity).

F.2. Information sources

Basic information came from the economic survey, used for both building and civil engineering measures. In the case of the former, building permits registered by the National Statistics Bureau[14] are used, while civil engineering data also came from the annual Central Bank survey of spending on buildings classified by type for a series of institutions and companies.[15]

These two sources are available for annual estimated (non-benchmark, or follow-up) compilations. The essential difference from benchmark year data involves the preparation of specific studies, which update cost structures for construction works. Moreover, the annual estimated compilation adds basic prices for inputs to update cost structures.

F.3. Compilation methods

Models by type of building and civil engineering are used to measure production and cost structures, with a breakdown of intermediate inputs and value added components, while the input-output coefficients remain constant (constant productivity method) used in annual estimated compilation measures.

Building method

For housing and non-housing buildings, the method used relies on valuation per square meter built, that is, a value of construction costs per square meter at the plant[16] is developed for different types of building. The built area is then

[14]/ This includes data on the location, approval date, new work or extension, use (house, apartment, industrial, other), approved area, number of units, floors, main materials in the structure, coverings and pavement, among others.

[15]/ For example, the public works ministry, mining companies, manufacturing, electrical, sanitary and communications.

[16]/ The first storey base in square meters is defined as the horizontal surface area where the building is placed.

estimated along with construction costs for the given period, using expenditure-time (production function) curves. For the 2003 benchmark compilation, updates, corrections and changes in estimates for some parameters were different from the 1996 version. Cost structures, duration and analysis of types of works were estimated using data from real construction companies and expert opinions. Entry data for the model included building permits registered with the National Statistics Bureau (around 40,000 yearly), which indicate the type of construction, destination, main materials, number of housing units and area, among others. These permits were classified by type (destination, area and number of floors). Then modules and models[17] of cost structures associated with permit characteristics were used to estimate cost structures per module.

The main modules are: engineering studies, preliminary work, urbanization, excavation and foundation, main structure, coverings, pavement, installations, terminations, appliances and accessories, external works, general construction expenditures, building surplus, general real estate expenditures, real estate financial expenditures and income surplus. Each module can be broken down into intermediate inputs and value added, with differences reflecting destination, type, surface area and number of floors. Each work involves a combination of modules and models associated with different products or types.

Segmentation of building works made classifying construction by destination possible, using the purpose reported in the building permit: housing industrial, commercial, financial or service establishment. Non-housing buildings are classified under education, health, manufacturing, wholesale and retail trade, offices and other.

To calculate gross output, the building permit includes data on the area approved, but nothing on the time period. This limitation makes it necessary to model the different stages and distribute spending over time, proportionate to physical progress, preparing expenditure-time curves that simulate actual implementation. Gross output is then calculated, using the price per square meter unit price, adding up the modules making up the building, as per the building permit information. Then, by selecting and applying expenditure-time curves to the permit area, the total value of square meters built during the period is established. This operation yields intermediate consumption and value added. Thus, the output for the building depends on the square meters approved, costs per square meter of each module, and the expenditure over time distribution curve.

Civil engineering method

In the case of civil engineering, it was necessary to define a universe of types (or typologies) of work[18] associated with each project feasible for development in a given activity, defining the infrastructure works to be carried out in a specific period. Then the most relevant types (by share of investment) were selected. The rest were included in certain kinds of construction, of similar characteristics. Once the universe was determined, types selected and incorporated, cost structures were established. Specialists in each activity defined and selected types and calculated cost structures, as per basic assumptions for actual projects.

Given the enormous range of infrastructure types, large-scale cost structures, myriad specialist companies, and diverse construction times for a single project, more types had to be developed for each kind of work, to establish in more detail the sub-industries for each. For example, in the mining industry, types were developed involving a more detailed breakdown, and then grouped by productive process.

For public investment projects, private civil engineering, and civil engineering, the expenditure method was applied, to identify investment expenditure for each type through surveys of investors or others and private investment plans and data. These expenditures were distributed as a production function estimated as the cost structure for each type of work, including a breakdown of intermediate inputs and value added components.

[17]/ Module refers to a general component of building (structure, covering, pavement, etc.). Model is a specific type, which groups together modules and, depending on the characteristics included in the building permit, defines the type of house, apartment, non-housing building. Each module involves a breakdown of input costs per square meter built. Each model is a specific kind of work within the module (for example, the covering module includes fiber-cement, galvanized iron, asphalt tiles, etc.

[18]/ Types involve a set of products used to execute the work and are broken down into intermediate inputs and value added components. For example, for electricity the types include: hydroelectric generating station, water intake, access roads, dams, dumps and equipment assembly, among others.

Cost structures were validated by comparing assumptions with actual projects, appropriate to the model types, keeping in mind that models involve average structures.

The new quantity of types made it possible to break a project down into several works. These types were used in Central Bank surveys to facilitate company responses, with investment amounts attached to each type. The civil engineering output value was estimated investment by public and private firms, reported in the Central Bank survey.

Repair and demolitions method

Both activities were determined using models. In the former's case, a model was designed that determined annual expenditure on repairs (broken down into inputs) per square meter of the stock of works. In the demolitions activity, a model was developed to represent a general average, which assumed that the amount involved in a demolition bears a relationship with the type of high-rise built in urban areas.

Construction
(millions of 2003 pesos)

PRODUCT MARKET			
SUPPLY		**DEMAND**	
Domestic supply		Intermediate demand	
Construction	7,267,079	Owner-occupied dwellings	584,520
Electricity, gas and water	77,267	Business services	119,478
Fabricación de productos metálicos, maquinaria y equipos	35,197	Public administration	87,930
Manufacture of chemicals, oil, rubber and plastic	34,836	Wholesale and retail trade	79,862
Communications	30,587	Education	61,328
Rest of industries	51,005	Rest of services	35,184
		Transportation	18,230
Total domestic supply. Basic price	7,495,970	Electricity, gas and water	12,343
		Financial services	11,105
Valued added tax	273,062	Health	11,092
		Rest of industries	69,924
Trade margin			
Total domestic supply. Purchaser price	7,769,033	Total intermediate demand. Purchaser price	1,090,996
Imported supply		Final demand	
Value c.i.f.	140	Consumption	
Import duties		Gross fixed capital formation	6,678,177
		Inventory change	
Total imported supply. Basic price	140	Exports of goods and services	
Valued added tax			
Trade margin			
Total imported supply. Purchaser price	140	Total final demand. Purchaser price	6,678,177
TOTAL SUPPLY. Purchaser price	**7,769,173**	**TOTAL DEMAND. Purchaser price**	**7,769,173**

INDUSTRY COSTS					
Costs by input origin **Main inputs. Purchaser prices**				**Value added**	
Intermediate consumption	Domestic	Imported	Total	Components	
Metallic products, machinery and equipment	487,090	353,963	841,052	Wages	2,297,597
Business services	715,227	0	715,227	Taxes	83,320
Non-metallic mineral production	594,101	112,372	706,474	Subsidies	-8,208
Chemical, oil, rubber and plastic	375,453	96,267	471,720	Gross surplus	1,158,673
Base metals	234,587	71,876	306,463		
Wood and furniture	217,892	12,652	230,544		
Rest of mining	160,330	766	161,096	Total value added	3,531,382
Transportation	117,522	0	117,522		
Textil, prendas de vestir y cuero	25,068	13,602	38,670		
Financial services	23,166	2,213	25,379		
Electricity, gas and water	23,138	0	23,138	Total output value added. Producer price	7,267,079
Paper and printed materials	16,673	3,447	20,120		
Rest of products	62,876	15,418	78,294		
Total intermediate consumption	3,053,121	682,575	3,735,696	Total gross output. Basic price	7,267,079

G. WHOLESALE AND RETAIL TRADE

G.1. Background

The wholesale and retail trade includes resales (sales without transformation) of new or used products, classified as follows:

i) Wholesale trade. This includes companies that resell products to retailers, industrial users, stores, institutions or professionals, other wholesalers, and those who act as agents or brokers in the purchase or sale of merchandise in the name of these persons or companies.

ii) Retail trade. This includes resales of products by shops, department stores, stands, mail order, traveling sales persons, consumer cooperatives, auction houses, etc., going to the public in general for consumption and personal or domestic use.

iii) Wholesale and retail trade in automobiles. This category involves three types of sales: automobiles; replacement parts and accessories for automobiles; and fuels for automobiles (retail).

This industry involves many companies, classified under different subsectors according to their main activity.[19]

One characteristic of this industry is significant concentration into a small number of corporations owning chains or involved in strategic alliances with other branches (department stores, supermarkets, pharmacies, banks and retailers).

G.2. Information sources

The main information source was the National Statistics Bureau survey of wholesale and retail companies (ECOM). The ECOM is similar to a financial statement, with a section for operating and non-operating income, and another section for expenditures, using similar line items. Balance sheets (eight columns) for reporting companies were used for cross-checking.

In selection the sample (3,965 companies) information from internal revenue for gross sales posted in 2002 VAT statements was used.

The universe included companies accounting for 95% of the industry's sales, with revenues reaching more than UF 2,400, and excluding microbusinesses.[20] Another group of companies was added, with good information from previous years, but which statistically did not enter the sample.[21]

The National Statistics Bureau created subgroups using criteria from ISIC rev. 3 to prepare a stratified sample.[22] Sample sizes (strata) for each industry were proportionate to the size of sales for each, guaranteeing a statistical confidence rate of 95% and suitable representativity.

It should be noted that in many cases industries are classified by their own contributors, so where information permitted it, some were corrected,[23] to reduce classification bias.

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[19]/ Depending on the main products that they sell.

[20]/ The universe from which the sample was selected went from 255,782 companies to 59,090, using these criteria.

[21]/ 371 additional companies were included in the sample.

[22]/ This divides the population into sub-populations (or strata) and then extracting a sample from each.

[23]/ This is the result of limits to self-classification, changes to the main activity or the sale of very different products, and a function of the main products sold.

G.3. Compilation methods

Measures for the wholesale and retail trade reflect two approaches to compilation. The industry method was used to estimate the output and the cost structure, based on ECOM and tax data. The product method was used to calculate wholesale and retail trade margins by product, based on a study of the main domestic and imported products (producer and purchaser prices). Both estimates produced a balancing matrix for reconciling wholesale and retail trade margins (trade margin reconciliation matrix, or MCMC), described in G.5.

First, accounting discrepancies between the ECOM and reporting company balance sheets were corrected, by evaluating changes over time in these companies' main variables using information from the previous year. For the remaining units, the main criterion was a comparison of company coefficients with those for the industry to which it belonged. In some cases, balance sheet data was preferred, because it was more detailed and better suited to the requirements and criteria applied in national accounts.

For intermediate consumption records, a set of balance sheets with specific, detailed inputs were used to estimate coefficients that were then applied to intermediate consumption based on the ECOM.

Data was inferred in those cases where information regarding some variables or minor items was lacking. The most common cases of this involved consumption of electric power, fuels, water, communications, expenditures on office supplies, among others. This involved assigning values to the missing variables, using the mean value from companies of a similar size and belonging to the same activity. Inferred variables involved solely intermediate consumption.

Expansion factors were calculated using information about 2003 income, by industry, and applied to the production accounts prepared for companies belonging to the ECOM 2002 sample strata, assuming constant technical coefficients in 2002 and 2003.

G.4. Wholesale and retail trade margins by product

Wholesale and retail trade margins were determined using the difference between the producer and the purchaser price (minus taxes). This means that the product is sold by the maker or importer (at the producer price or c.i.f. plus customs duties, as applicable) then reaches the final consumer (households and companies). This procedure yielded margins that were applied to the tradable "base".

To determine margins, a special study was used, based on samples of domestic and imported products, selected according to their importance to domestic supply and the structure of imports. In the case of domestic products, a sample of 200 products was defined, involving 4,410 varieties[24] with data on producer and purchaser prices, per establishment, for May and July 2004. The sample of 122 imports was expanded to include 526 product varieties.

To obtain producer prices, the price at which most production was sold was obtained from makers, and associated with the purchasing industry. This avoided using "list prices", biased toward the average. For imports, the producer price is equal to the value c.i.f. plus the respective duties. Purchaser prices, meanwhile, were based solely on points of sale in greater Santiago.

G.5. Reconciliation matrix for wholesale and retail trade margins (MCMC)

This matrix involved an accounting exercise to determine the output of the wholesale and retail trade. The product approach (total rows or commodity flow method) and the industry or supplier approach (total columns) were

[24]/ The National Statistics Bureau used the same method as that used for the CPI. That is, it examined prices for different product varieties and then aggregated them for a generic product.

used. The former was developed by applying rates for producer price margins (base) for all goods sold. The second involved the output for the wholesale and retail trade and other industries posting commercial margins as secondary production.

The purpose of the MCMC was to reconcile the differences between the two methods, through an iterative process tending toward coherence at the margins of specialized industries and the products trading on markets. For example, the margin on fuels by product had to be consistent with the margin of fuel distributors. Thus, the sales margins validated distribution of margins across different types of establishment, for specific product lines. Finally, for non-specialized establishments (supermarkets, for example) the industry's margin had to be distributed across a wide range of products, using margins that to some degree were limited by estimates from specialized industries.

Wholesale and retail trade
(millons of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Wholesale and retail trade	1,628,879
Manufacture of chemicals, oil, rubber and plastic	33,679
Transportation	33,330
Copper	28,072
Business services	21,665
Rest of industries	24,877
Total domestic supply. Basic price	1,770,502
Valued added tax	90,109
Trade margin	
Total domestic supply. Purchaser price	1,860,612
Imported supply	
Value c.i.f.	442,592
Import duties	
Total imported supply. Basic price	442,592
Valued added tax	
Trade margin	
Total imported supply. Purchaser price	442,592
TOTAL SUPPLY. Purchaser price	**2,303,204**

DEMAND	
Intermediate demand	
Wholesale and retail trade	380,141
Transportation	263,597
Business services	148,078
Manufacture of food, beverages and tobacco	108,589
Manufacture of paper and printed materials	72,528
Manufacture of chemicals, oil, rubber and plastic	70,975
Communications	60,025
Fruit production	44,596
Manufacturing of wood and furniture	34,968
Rest of services	28,905
Rest of industries	126,062
Total intermediate demand. Purchaser price	1,338,464
Final demand	
Consumption	665,500
Gross fixed capital formation	
Inventory change	
Exports of goods and services	299,239
Total final demand. Purchaser price	964,739
TOTAL DEMAND. Purchaser price	**2,303,204**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Business services	1,752,994	0	1,752,994
Transportation	1,383,614	2,532	1,386,146
Metallic products, machinery and equipment	121,527	528,650	650,177
Wholesale and retail trade	218,695	161,446	380,141
Chemical, oil, rubber and plastic	267,240	75,359	342,600
Financial services	196,154	29,352	225,506
Paper and printed materials	165,876	22,178	188,054
Communications	142,977	0	142,977
Electricity, gas and water	92,966	0	92,966
Construction	79,862	0	79,862
Restaurants and hotels	76,989	0	76,989
Rest of personal services	35,531	0	35,531
Rest of products	106,436	12,836	119,272
Total intermediate consumption	4,640,861	832,353	5,473,214

Value added

Components	
Wages	2,786,042
Taxes	242,140
Subsidies	-30,915
Gross surplus	1,414,005
Total value added	4,411,272
Total output value added. Producer price	9,884,486
Total gross output. Basic price	9,884,486

H. RESTAURANTS AND HOTELS

H.1. Background

The restaurant activity includes sales of beverages and food at table or over-the-counter within the establishment, restaurants or any kind of food sales in transportation modes carried out by non-transport entities, catering for banquets and other celebrations, food services supplied to companies and private individuals, preparation of frozen foods, take-out and home-delivery.

The hotel activity includes any establishment offering temporary lodging, overnight lodging and related services, for payment. It also includes food services provided with the accommodation. Long-term furniture rentals to non-tourists were excluded, as are permanent furnished accommodation and the provision of services with accommodation.

Both activities are highly concentrated among large operators and extremely atomized among a series of small establishments. The large producers are clearly linked to specific demand, as occurs with restaurants associated with the food services industry and, in the case of hotels, associated with Chilean franchises of international chains.

H.2. Information sources

Most information came from a industry survey (*Encuesta de Servicios de Alimentación y Alojamiento Turístico,* Esaat) applied by the National Statistics Bureau, which in the case of the benchmark compilation involved detailed validation of inputs and items. In the benchmark compilation, sample size was 520 companies, similar to previous years' estimated compilation. The National Statistics Bureau stratified this universe into each activity (hotels and restaurants) and by sales volume. Within each stratum companies were ranked by sales, producing two company segments: forced inclusion and random selection. The former included the units with the most sales from each stratum, while the latter was constructed using a systematic sample of the remaining stratum units. In addition to the usual Esaat survey, a questionnaire gathered more information on the good cost structure of selected companies.

Additional information came from tax data on income, from internal revenue, which determined the universe, set expansion factors for the sample and provided a basis for comparison for items such as wages. The same source provided monthly VAT declarations, used to calculate a contrast magnitude for the output level.

Finally, balance sheets for the main companies were also used.

H.3. Compilation methods

Gross output: Sample design by the National Statistics Bureau for the Esaat survey is representative only to the two activities described. However, given the enormous range of establishments among hotels and restaurants, with substantially different outputs and input requirements, each industry was divided into more homogeneous groups. Thus, variables in the production account were more precisely estimated. Corrections were made to account for tips as a source of income that increases output. Balance sheet items helped to determine the nature of secondary and production and wholesale and retail trade margins. The output universe for hotels and restaurants was determined using company income statements and reported operating income. Most production went to household consumption, which was estimated using a demand hypothesis that was then compared to the updated family budget survey (EPF). The rest of demand was treated as an intermediate input for other industries.

Intermediate consumption: This was estimated using the Esaat survey, disaggregated data from balance sheets and, in the case of inputs associated with food, direct information from some companies. Other input items were identified using information regarding less important items (office and cleaning supplies, services, among others) from balance sheets. The sample cost structure was then projected on to the reference universe, using production coefficients calculated for the sample.

Value added: Wages and taxes on production came directly from surveys and balance sheets. Wages were corrected to include estimated tips. Value added estimates for the universe were done using the relevant production coefficient.

Restaurants and hotels
(millons of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Restaurants and hotels	1,377,841
Rest of services	6,819
Health	1,917
Education	1,391
Manufacture of metalic products, machinery and equipment	1,099
Rest of industries	2,556
Total domestic supply. Basic price	1,391,624
Valued added tax	128,844
Trade margin	
Total domestic supply. Purchaser price	1,520,469
Imported supply	
Value c.i.f.	14,611
Import duties	
Total imported supply. Basic price	14,611
Valued added tax	
Trade margin	
Total imported supply. Purchaser price	14,611
TOTAL SUPPLY. Purchaser price	**1,535,080**

DEMAND	
Intermediate demand	
Transportation	91,473
Wholesale and retail trade	76,989
Public administration	50,204
Business services	46,385
Rest of services	34,509
Education	26,519
Copper	22,886
Health	22,007
Financial services	13,362
Construction	9,826
Rest of industries	53,317
Total intermediate demand. Purchaser price	447,476
Final demand	
Consumption	1,079,532
Gross fixed capital formation	
Inventory change	
Exports of goods and services	8,071
Total final demand. Purchaser price	1,087,603
TOTAL DEMAND. Purchaser price	**1,535,080**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Alimentos, bebidas y tabaco	383,666	49,714	433,380
Business services	194,815	0	194,815
Agrícolas	48,893	1,557	50,450
Chemical, oil, rubber and plastic	31,828	2,816	34,644
Frutas	21,620	890	22,510
Electricity, gas and water	19,923	18	19,941
Pesca	19,895	35	19,929
Construction	18,663	0	18,663
Financial services	13,685	198	13,883
Wholesale and retail trade	12,909	160	13,069
Communications	12,796	0	12,796
Transportation	11,776	0	11,776
Rest of products	47,514	7,539	55,052
Total intermediate consumption	837,981	62,926	900,907

Value added

Components	
Wages	346,844
Taxes	10,602
Subsidies	-1,299
Gross surplus	183,464
Total value added	539,611
Total output value added. Producer price	1,440,519
Total gross output. Basic price	1,440,519

I. Transportation

I.1. Background

This industry includes regular and irregular transportation of passengers and freight, carried out by domestic firms in Chile and abroad. Six activities include: passenger and freight railway transport, passenger land transport (underground train, urban and inter-urban buses, taxis, collective taxis, radio taxis and special transportation, among others), freight land transport, sea and coastal water transport (ocean vessels, cabotage and internal navigation routes), air transport (domestic airlines and air taxis), and industries associated with transportation (such as airport services and parking, freight handling and storage, concessions and travel agencies, among others).

The type of consumer varies according to the service. Thus, passenger land transport and air transportation are mainly used by households, whereas maritime freight, trucking and associated services are usually required by other industries.

Transportation industries vary widely, both in their respective markets and industry organization (technological level, strength, size, concentration), and the availability of data for economic measures. Railways, subways, airlines, ocean shipping lines and other transportation-related industries (highways, ports, airports, oil pipelines and gas pipelines) are run by a small number of large companies, for which information is complete. In contrast, freight and passenger land transport, cabotage shipping, air taxis, agencies and storage are all industries with a wide range of players, including many small and medium-sized companies and self-employed operators.

In the case of freight and passenger land transport, most contributors pay their taxes based on presumed income mode (*renta presunta*), and therefore are not required to maintain detailed accounts.

I.2. Information sources

To prepare production accounts for this industry, several sources were used, among them Central Bank surveys, company balance sheets, annual reports, a required reporting form (*Ficha Estadística Codificada Uniforme*, FECU), tax data, directories of relevant institutions and the Central Bank's Manual of Foreign Exchange Regulations.

Statistics on volumes were also compiled by the National Statistics Bureau, the Ministry of Transportation and Telecommunications (MTT), the Civil Aviation Supervisory Board (*Junta Aeronáutica Civil*, JAC) and the agency responsible for the merchant marine (*Dirección General del Territorio Marítimo y Marina Mercante*, Directemar), for projection onto the universe of some specific activities for which company samples exist.

To measure output and costs, an external study examined information and prepared the production account, and details on cost structures and income.

In the case of passenger transport by road, direct surveys were conducted on interurban transportation and a consultant studied urban transport. Public agency studies provided information on cost structures and incomes for urban transport by bus, along with information from bus operators associations and input data.

I.3. Compilation methods

Gross output: The value of gross output for those industries for which a company universe was available was calculated using the direct sum of income items, distinguishing between primary and secondary output. Industries with a measurable universe include railway transportation, the subway measured as an activity involving passengers, ocean shipping lines and domestic airlines. Transportation-related industries included highway concessions, ports, airports, and gas and oil pipelines.

For more dispersed industries, a sample of companies was used and then projections made by industry and available information. For air taxis, customs agencies, travel agencies, parking and storage, income tax data was used as a proxy variable for gross output. For bus terminals, freight agencies and maritime freight, information from the directory was expanded, while in the case of cabotage shipping, indicators for fleet capacity were used. For the foreign subsidiaries of airlines, the number of passengers moved was used.

Ground transport of freight and passengers, highly atomized industries, composed of companies that usually declare through the presumed income mode, tax data was used for comparison, after examining ways of associating presumed with actual income.

In the case of cargo transportation, data was projected onto the universe by the number of companies, stratified according to income. The results were validated by a case study and an alternative method for projecting onto the stock of freight vehicles.

Freight transport, as per its definition, refers only to services provided to third parties, which are transportation services for one's own use is excluded. This means that a significant volume of transportation service is not explicitly valued, although it does form part of the structure of costs and the prices of goods produced by companies.

Information about passenger transport came from a sample of companies and vehicles.[25] For projection onto the universe, to estimate the production account, information about the vehicle stock came from the Ministry of Transport and the National Statistics Bureau.

To assign output destination, some industries by nature dedicate all output to intermediate sales or households. This is the case with rail freight transport,[26] gas and oil pipelines, which go directly to intermediate sales, while 93% of passenger transport goes to households.

For domestic airlines and ocean liners, information from the Central Bank's Manual of Foreign Exchange Regulations was used to establish destination in export and domestic markets, complemented by information from internal Central Bank surveys.

Intermediate consumption: Intermediate consumption measured for this universe came from direct Central Bank surveys, itemizations using company tax reports and appendices from the same surveys.

For activities for which surveys from a company sample were available, the same expansion factors used to establish the value of gross output were applied to the universe for intermediate consumption, maintaining the sample structure.

For passenger land transport, cost structures by type of vehicle were used, in line with samples and studies, and expanded to the stock of vehicles in circulation. In the case of freight transport, the cost structure was prepared by company size and expanded to the whole universe of stratified sales.

Value added: To estimate value added components (wages, taxes on production and gross surplus), the same method as that used for the gross output of activities measured by the universe was employed. This came directly from surveys, while for sampled activities, the same expansion factor was used as for GO.

[25]/ The sample involved 308 surveys of urban and rural buses; collective, basic and radio taxis; school buses; tourist transportation; transport to and from the airport; employee and other forms of group transportation.

[26]/ A very small portion of output goes to exports.

Transportation
(millons of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Transportation	8,244,247
Public administration	64,110
Wholesale and retail trade	27,188
Manufacture of chemicals, oil, rubber and plastic	12,410
Manufacture of non-metalic minerals	2,510
Rest of industries	7,390
Total domestic supply. Basic price	8,357,854
Valued added tax	20,503
Trade margin	
Total domestic supply. Purchaser price	8,378,357
Imported supply	
Value c.i.f.	986,613
Import duties	
Total imported supply. Basic price	986,613
Valued added tax	
Trade margin	
Total imported supply. Purchaser price	986,613
TOTAL SUPPLY. Purchaser price	**9,364,970**

DEMAND	
Intermediate demand	
Transportation	1,659,231
Wholesale and retail trade	1,386,146
Manufacture of food, beverages and tobacco	239,776
Copper	232,455
Manufacture of paper and printed materials	176,481
Manufacturing of wood and furniture	173,491
Manufacture of chemicals, oil, rubber and plastic	157,453
Construction	117,522
Rest of mining	108,418
Electricity, gas and water	94,018
Rest of industries	516,848
Total intermediate demand. Purchaser price	4,861,839
Final demand	
Consumption	2,364,878
Gross fixed capital formation	
Inventory change	
Exports of goods and services	2,138,253
Total final demand. Purchaser price	4,503,131
TOTAL DEMAND. Purchaser price	**9,364,970**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Chemical, oil, rubber and plastic	1,195,752	598,997	1,794,749
Transportation	697,318	961,913	1,659,231
Business services	488,801	32,272	521,073
Wholesale and retail trade	260,595	3,002	263,597
Metallic products, machinery and equipment	82,632	116,885	199,517
Financial services	135,655	28,383	164,038
Restaurants and hotels	80,536	10,937	91,473
Paper and printed materials	37,802	14,065	51,867
Communications	50,630	0	50,630
Electricity, gas and water	28,460	117	28,577
Construction	18,230	0	18,230
Alimentos, bebidas y tabaco	5,095	9,532	14,626
Rest of products	31,927	10,219	42,146
Total intermediate consumption	3,113,433	1,786,320	4,899,753

Value added	
Components	
Wages	1,378,669
Taxes	86,455
Subsidies	-48,717
Gross surplus	2,124,473
Total value added	3,540,881
Total output value added. Producer price	8,440,634
Total gross output. Basic price	8,440,634

J. COMMUNICATIONS

J.1. Background

The communications industry consists of two activities: telecommunications[27] and postal and courier.

Telecommunications consists of a small number of firms and the main industries are regulated: telecommunications firms require a permit or concession from the Undersecretary of Telecommunications (*Subsecretaría de Telecommunicaciones*, Subtel), subject to duties and obligations established in the general telecommunications law, which requires registry of an up-to-date list of company boards.

This activity consists mainly of large companies and is highly concentrated: 75% of output comes from the ten main companies. The exception to this market structure is internet access centers, with a very diverse market composed mainly of microbusinesses.

The main characteristic of this activity is the importance of technology and the strong performance of the supply of services, which required updating activity and product classifications for the 2003 benchmark compilation.

For postal services, very different companies, in terms of size, integration into the formal economy and regulatory status, co-exist. In general postal services, a large, publicly owned company predominates. Among small private couriers there are some 20 large firms and a multitude of small ones, with high entry and exit rates. When they operate internationally, couriers require authorization from the national customs service and the main ones are subsidiaries of multinational firms running worldwide networks

J.2. Information sources

Most information for this industry's accounts comes from Central Bank surveys. To compare and validate, balance sheets, annual reports and the FECU reporting form were used. Balance sheets and detailed information provided by the main companies provided suitable levels of detail for the structure of production and costs, in an exercise typical of benchmark compilation, which is not repeated to the same degree of detail in annual estimated accounts.

Moreover, for the benchmark compilation, service indicators for telecommunications services from Subtel were used, by type of user, including complementary information to identify usage destinations.

Information sources used to extrapolate for the whole universe of activities, measured using samples, included income tax data, indicators for internet connections (Subtel), and the list of internet access centers (internal revenue and Subtel).

To determine the number of telecommunications companies, the Subtel was used. To define the universe of private couriers, directories from the National Statistics Bureau, the specific business association (*Asociación Gremial de Correos Privados*) and the Central Bank were used. Finally, in the case internet access centers, a list of companies from SII-Subtel was used.

[27]/ Includes the transmission of sounds, images, data or other types of information via cable, transmission and retransmission stations, and satellites, Communications includes telephones. telegraphs. and telex. along with the transmission (transport) of radio and television programs. Internet access. public telephones. This industry does not include information transmitted through websites and the production of radio and television programs whether or not these are combined with broadcast.

J.3. Compilation methods

Given the strength of this industry, activity and product classifications were reviewed for the 2003 benchmark compilation. Telegraph services were eliminated and intermediate services,[28] data transmission and industries associated with Internet, which altogether account for 8% of this industry's GDP, were added.

For products, the main change was the separation of services into telecommunications, Internet and others. Similarly, as per recommendations from Chile's Central Product Classifier (*Clasificador Central de Productos,* CCP) some services were removed from telecommunications and added to other products, such as maintenance within business services and installation within construction services.

Given the market structure of this industry, to measure general postal services and most activities, the census method (sum of companies) was used to measure output and its structure. For long distance telephone and intermediate services, to complete the universe information from the FECU reporting form was used and applied to the industry's structure of production. Altogether, the activities measured by census account for about 92% of industry GDP.

Measures for the remaining activities came from company samples. In the case of cable television, census strata and sample strata were used, and then expanded to the universe using income tax data. For private couriers, sample data was projected onto the universe, using tax data. For internet access providers, Internet connection indicators (Subtel) were used.

For internet access centers, a case study was also applied, and then expanded to the universe using the number of companies.

Gross output: Income accounts, distinguishing between primary and secondary output, were used (business services among subsidiaries, rentals, net sales of transmission and reception equipment, among others).

Output destination was determined using direct information on income or the nature of the service. Output indicators were separated by user type (residential or commercial, from Subtel), to complement income data when distributing domestic destinations between consumption and intermediate demand.

Finally, to measure courier exports, estimates and inferences for output were done using data from companies providing same.

Special treatment was applied to telecommunications equipment distributed at less-than-cost, a common practice in the industry. In this case the margin was set at zero and a loss to reconcile volume was used, so as not to affect the output or intermediate consumption of the industry.

Intermediate consumption: This was estimated using information from surveys, balance sheets and complementary information provided by the industry's main companies.

Given the importance of own consumption, and business services provided within telecommunications holding companies, supply and use were reconciled to account for this factor.

Value added: Value added components (wages, taxes on production and gross surplus) were estimated using the same basic method as the rest of the production account, that is, with data from Central Bank surveys, financial statements, annual reports and balance sheets.

[28]/ Commutation and transmission services provided by telecommunications operators to each other.

Communications
(millons of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Communications	2,403,763
Restaurants and hotels	9,856
Electricity, gas and water	440
Education	330
Rest of services	287
Rest of industries	86
Total domestic supply. Basic price	2,414,762
Valued added tax	216,610
Trade margin	
Total domestic supply. Purchaser price	2,631,372
Imported supply	
Value c.i.f.	110,716
Import duties	
Total imported supply. Basic price	110,716
Valued added tax	
Trade margin	
Total imported supply. Purchaser price	110,716
TOTAL SUPPLY. Purchaser price	**2,742,088**

DEMAND	
Intermediate demand	
Communications	723,247
Wholesale and retail trade	142,977
Business services	133,868
Financial services	94,541
Public administration	51,604
Transportation	50,630
Health	35,466
Education	30,199
Rest of services	26,139
Manufacture of food, beverages and tobacco	20,227
Rest of industries	104,638
Total intermediate demand. Purchaser price	1,413,536
Final demand	
Consumption	1,218,376
Gross fixed capital formation	
Inventory change	
Exports of goods and services	110,176
Total final demand. Purchaser price	1,328,552
TOTAL DEMAND. Purchaser price	**2,742,088**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Communications	615,098	108,149	723,247
Business services	443,258	1,610	444,868
Wholesale and retail trade	60,025	0	60,025
Rest of personal services	52,219	0	52,219
Paper and printed materials	34,951	1,618	36,570
Financial services	21,850	3,107	24,957
Transportation	23,020	0	23,020
Metallic products, machinery and equipment	638	14,353	14,991
Electricity, gas and water	14,380	0	14,380
Chemical, oil, rubber and plastic	6,698	978	7,676
Construction	4,878	0	4,878
Education	2,668	0	2,668
Rest of products	1,533	112	1,645
Total intermediate consumption	1,281,216	129,927	1,411,143

Value added

Components	
Wages	274,535
Taxes	9,909
Subsidies	-748
Gross surplus	886,858
Total value added	1,170,554
Total output value added. Producer price	2,581,697
Total gross output. Basic price	2,581,697

K. FINANCIAL SERVICES

K.1. Background

The financial intermediation and insurance industry is divided into three activities: monetary intermediation, other financial intermediates and insurance. The monetary intermediation activity includes institutions receiving deposits and granting loans, such as commercial banks, central banking and savings and credit cooperatives reporting to the Superintendency of Banks and Financial Institutions (*Superintendencia de Bancos e Instituciones Financieras*, SBIF). Other kinds of financial intermediation include loan-granting institutions, such as leasing and factoring companies, Corfo and others. These also include services provided by financial auxiliaries, such as: stock brokers, securities exchanges, pension fund managers (*Administradoras de Fondos de Pensiones*, AFP) and investment managers.

The insurance activity includes life insurance, general insurance, health insurance (known as Isapres) and insurance brokers.

In national accounts, the financial industry has several characteristics that influence how output is measured and how own inputs is determined. In the case of monetary intermediation, output is determined using the difference between interest on loans or interest received and interest on deposits or paid out, technically defined as financial intermediation services indirectly measured (FISIM), plus actual commissions charged on services. This activities has a high level of own inputs given the commissions on services provided to each other. In this sense, companies offering support services to banks and commissions on collections should be noted.

For the insurance activity, output is referred to as service cost and determined using the difference between the direct premium and direct accidents, corrected using the change in technical reserves. Moreover, as per international recommendations, income from technical reserve investments is also included as output, under the item supplementary premium. This variable is particularly importance in the case of life insurance, specifically, annuity income (*renta vitalicia*), which technically speaking involve no service cost and which in Chile, given the prevailing pension system, has become very important.

Reinsurance was determined by consolidating internal reinsurance and presenting only reinsurance abroad, which is one of the industry's own imported inputs. On insurance brokers, their output is measured using commissions paid by companies and is considered an own input of the industry.

K.2. Information sources

The data for measures for banking, financial services and insurance is divided into two groups: i) statistics, accounting and financial information from the Superintendencies of banks, AFPs, Isapres and Securities and Insurance, and ii) sample accounts and statistics gathered directly from companies.

K.3. Compilation methods

As in current years, for the 2003 benchmark compilation financial institutions national accounts were prepared in an integrated fashion, using complete financial statements. This involved constructing current and accumulation accounts within the process itself.

Balance sheets for two consecutive years and statements for the year were used to establish production accounts, primary and secondary income and accumulation distribution, for each family or group of companies.

However, production accounts prepared in this fashion using these sources contain aggregate variables, that is: the values for output, intermediate consumption and value added. This level of aggregation does not meet the requirements for a benchmark compilation, so representative samples for the different family statistics were done to obtain more

detailed information on products or groups of products and thus calculate the array for intermediate consumption and value added components: wages, taxes on production and depreciation, as required.

Gross output: The output value for financial intermediates includes commissions, FISIM and secondary output; while for financial auxiliaries this variable consists of actual commissions and secondary output.

To establish output, three main elements are involved:

- FISIMs, which are assigned to nominal industry intermediate consumption.
- Actual commissions, assigned to intermediate demand, household consumption or exports, according to the type of service represented.
- Secondary output. Assigned by type of service and the company providing it.

The output for insurance services represents the cost of the service and incomes from investment of insurance technical reserves, labeled as supplementary premiums. For the insurance activity, secondary output involves rents received by insurance companies, classified as real estate service output.

Life and health (Isapre) insurance output is assigned to final household consumption or secondary output, as is intermediate demand, depending on the specific service.

General insurance output is defined by risk and includes exports, which involve commissions on insurance transferred abroad.

For brokers or insurance agents who provide services mainly to insurance companies, gross output is defined by company expenditure on intermediation to place policies, liquidation of damages and reinsurance transactions. We distinguished between the output of legally constituted companies and individuals. The former are classified as companies and an associated cost structure was calculated. The latter were treated as self-employed. This group's total output went to intermediate demand.

Intermediate consumption: Intermediate consumption of financial intermediation services comes from the classification of administrative expenditures; details by product constitute a particular level of detail achieved for the benchmark year, and reveals significant own input, represented mainly by companies' services to support their main business and other. Intermediate consumption for the insurance industry contains a large degree of self input, reflecting services from insurance brokers and the cost of reinsurance abroad, this last being treated as an imported own input.

Value added: This is the difference obtained by subtracting intermediate consumption and its components from gross output, based on accounting data from a range of sources.

Financial services
(millons of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Financial services	3,782,580
Public administration	15,821
Copper	4,536
Communications	2,269
Education	68
Rest of industries	52
Total domestic supply. Basic price	3,805,326
Valued added tax	114,656
Trade margin	
Total domestic supply. Purchaser price	3,919,981
Imported supply	
Value c.i.f.	442,171
Import duties	
Total imported supply. Basic price	442,171
Valued added tax	
Trade margin	
Total imported supply. Purchaser price	442,171
TOTAL SUPPLY. Purchaser price	4,362,152

DEMAND	
Intermediate demand	
Imputaciones bancarias	1,740,067
Financial services	616,232
Wholesale and retail trade	225,506
Transportation	164,038
Electricity, gas and water	68,326
Manufacture of food, beverages and tobacco	60,304
Manufacture of chemicals, oil, rubber and plastic	49,272
Copper	47,193
Public administration	37,073
Manufacture of paper and printed materials	33,658
Rest of industries	325,644
Total intermediate demand. Purchaser price	3,367,312
Final demand	
Consumption	882,164
Gross fixed capital formation	
Inventory change	
Exports of goods and services	112,676
Total final demand. Purchaser price	994,840
TOTAL DEMAND. Purchaser price	4,362,152

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Financial services	327,764	288,468	616,232
Business services	506,710	0	506,710
Communications	94,541	0	94,541
Paper and printed materials	57,187	7,933	65,119
Transportation	37,147	0	37,147
Electricity, gas and water	17,331	0	17,331
Restaurants and hotels	13,362	0	13,362
Construction	11,105	0	11,105
Chemical, oil, rubber and plastic	8,173	2,661	10,834
Rest of personal services	10,779	0	10,779
Health	10,580	0	10,580
Wholesale and retail trade	7,104	508	7,612
Rest of products	10,995	699	11,694
Total intermediate consumption	1,112,777	300,268	1,413,046

Value added

Components	
Wages	1,127,725
Taxes	45,736
Subsidies	-254
Gross surplus	1,278,211
Total value added	2,451,419
Total output value added. Producer price	3,864,464
Total gross output. Basic price	3,864,464

L. Business services

L.1. Background

Business and real estate services involve four activities: information technology and associated services, machinery and equipment rental, other business service, and real estate services.

The information technology services activity consists of companies selling computer software and hardware, which also offer consulting services, maintain and repair equipment, and offer training in their field. The machinery and equipment rental activity includes rentals of transport equipment, agricultural machinery and equipment, construction and engineering, and offices. Other business service industries include a wide range of offerings, among them: collections, solvency evaluation, photocopies, and consultants. Within this group, the main services are architecture, engineering and related, consulting on company management, legal services and notaries, publicity, accounting, and personnel. The main objective of the real estate activity is to rent or sell real estate, according to three classifications: investment company services in specialized building and sales of real estate, general real estate rents, and rental of spaces such as commercial centers or manufacturing parks.

L.2. Information sources

The main sample data came from the services survey (Eserv) and financial statements of the main companies included therein. To determine the universe, income tax data was used (which also permitted inferring purchasing, wages, depreciation and other data); moreover, other tax data such as wage and VAT reports from industry companies was used.

For the benchmark compilation, the information provided by Eserv came from a sample of 1,463 companies. This source is also available for the annual estimated compilation, but in the case of the benchmark compilation, the number of companies surveyed rose by about 50% and the data was mined more intensely, especially in terms of validating and detailing inputs.

L.3. Compilation methods

Gross output: Gross output at the sample level reflects incomes arising directly from the industry reported by companies included in the Eserv, and atypical outputs (including trade margins) provided by both the survey and an analysis of the balance sheets available. The reference gross output universe was determined using tax data, given the amounts reported in the income statement under the items operating income, in the case of companies, and honoraria, in the case of the self-employed.

The main output market for business services are manufacturers, mining, communications and transportation companies, which absorb about half of their output. A significant part of production goes to own use, among business service producers themselves, for example publicity and staff. Only a small part of output goes to households.

Intermediate consumption: To obtain standard cost structures, a detailed analysis of technical input-output coefficients was prepared to define specialized and generic inputs, missing data and atypical values, which translated into a series of corrections, inferences for missing data, and input item details. To avoid altering the original information, inferences were carried out at the level of specific activities. For each input and company an output coefficient was calculated. The response rate or number enabled defining the relevance of the input in each activity.

For the generic input item, unspecified in the Eserv, financial statement data providing maximum detail for each activity was used. The structure of intermediate inputs thus obtained was applied to unidentified sample data. For input items typical of each activity, balance sheets and import data was reviewed.

Once cost structures were standardized, they were projected for the universe using the output coefficients determined at the sample level.

Value added: All value added components arose from the information provided by companies through the Eserv survey. To expand this to the universe tax data was used.

Within the compilation, agricultural services required special treatment. Their output in the 2003 base year was determined using respective costs reported by surveys and case studies prepared to measure agriculture and forestry output. The cost structure for each crop (fruit, livestock or forestry species) defined a cost for agricultural services. These were then projected for the universe of that activity, using the output method determined using the product method. That is, it was defined as a percentage of the agricultural service costs implicit in each crop's output and unit of animal and forestry output.

Business services
(millons of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Business services	8,338,617
Wholesale and retail trade	639,892
Manufacture of metalic products, machinery and equipment	194,542
Transportation	158,834
Communications	124,947
Rest of industries	547,131
Total domestic supply. Basic price	10,003,963
Valued added tax	127,037
Trade margin	
Total domestic supply. Purchaser price	10,131,001
Imported supply	
Value c.i.f.	478,085
Import duties	
Total imported supply. Basic price	478,085
Valued added tax	
Trade margin	
Total imported supply. Purchaser price	478,085
TOTAL SUPPLY. Purchaser price	**10,609,086**

DEMAND	
Intermediate demand	
Wholesale and retail trade	1,752,994
Business services	1,524,490
Copper	905,696
Construction	715,227
Manufacture of food, beverages and tobacco	551,892
Transportation	521,073
Financial services	506,710
Communications	444,868
Manufacture of chemicals, oil, rubber and plastic	354,306
Public administration	322,964
Rest of industries	2,071,853
Total intermediate demand. Purchaser price	9,672,073
Final demand	
Consumption	578,575
Gross fixed capital formation	
Inventory change	
Exports of goods and services	358,438
Total final demand. Purchaser price	937,013
TOTAL DEMAND. Purchaser price	**10,609,086**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Business services	1,132,483	392,007	1,524,490
Chemical, oil, rubber and plastic	142,122	100,139	242,260
Paper and printed materials	228,336	12,891	241,227
Rest of personal services	238,087	0	238,087
Metallic products, machinery and equipment	42,947	176,670	219,617
Wholesale and retail trade	130,366	17,712	148,078
Communications	133,868	0	133,868
Construction	119,478	0	119,478
Financial services	86,369	15,159	101,527
Transportation	84,972	0	84,972
Metálicas básicas	49,404	10,740	60,144
Electricity, gas and water	48,103	1	48,104
Rest of products	93,211	13,291	106,502
Total intermediate consumption	2,529,746	738,609	3,268,355

Value added	
Components	
Wages	2,334,808
Taxes	93,890
Subsidies	-1,034
Gross surplus	2,771,892
Total value added	5,199,556
Total output value added. Producer price	8,467,911
Total gross output. Basic price	8,467,911

M. Health

M.1. Background

This industry involves the supply of public and private health services. The health system's management involves the public service, insurance and health service provides, the measures for health do not include the health insurance market (Isapres), regulatory bodies, and public insurance, which form part of the public administration (Ministry of Health - Minsal, Superintendency of Health Insurance, SISP, and the national public health insurance program, Fonasa).

Chile's health system is both public and private. Regulatory bodies include the health ministry, whose regulations apply to both public and private sectors, to differing degrees. The public health care system includes establishments ranging from those offering primary health care, generally administered by local municipal governments, through to the more complex secondary and tertiary care levels, managed by health services. The National Health Service (*Sistema Nacional de Servicios de Salud*, SNSS) brings together 28 territorial health services, decentralized and dependent on Minsal. Health services are responsible for public and environmental health.

Private health service providers include clinics, private hospitals, medical, dental and diagnostic centers, laboratories and independent health professionals.

Other health systems for specific beneficiary groups, typically smaller and for the exclusive use of members, also participate in this structure.

Service provision may involve both public and private systems. For example, in the cases of Fonasa's free choice system, agreements have been made with private health care providers. Similarly, Isapre affiliates can use the public system, and their insurer must cover services, as per contract provisions.

Occupational health and safety insurance (Law 16,744) works differently. It was designed to meet the health care needs of company employees, affiliated through different institutional contracts. The public mode is managed by an administrative body (*Instituto de Normalización Previsional*, INP). The private system involves health and safety mutuals, which are private, non-profit corporations, set up to manage social insurance covering occupational health and safety risks.

M.2. Information sources

For private health, basic information came from surveys and financial statements for a sample of companies. In the case of legally constituted bodies, surveys were done of five activities: hospitals and clinics, psychiatric clinics, convalescent homes, laboratories and veterinary clinics. Along with the survey, financial statements were requested from all informants. For individuals (doctors, dentists and other independent health care professionals) information from the National Statistics Bureau survey of the self-employed was used. To determine the production universe for each activity, tax data from the SII was used. This source also provided information used to determine standards of comparison for average aggregates, depreciation and employment. Both Fonasa and the Superintendency of Isapres provided information on co-payments, necessary to create a comparative reference for output. An updated EPF was used for the same purpose.

In public health, government accounting prepared by the national comptroller's office (*Contraloría General de la República*, CGR), provided the information universe. Mutuals were an exception, since they are not subject to centralized control, making it necessary to conduct surveys and request financial statements from each of the three institutions involved.

M.3. Compilation methods

Gross output: The output measures for the private and public health industries use different methods and sources. Private health refers to the production of health services in a market framework and their costs, by definition, allow gross surplus. Public health, meanwhile, involves the production of non-market health services and is measured as the sum of expenditures on goods and services, wages, asset depreciation and taxes on production. To measure public health output, therefore, is similar to the method used for public administration, and information at the universe level exists to make the necessary calculations.

For private health, surveys and financial statements give rise to sample data for primary and secondary output. The output universe was determined using income tax data, particularly amounts declared as operating income by legally constituted bodies and as honoraria by individuals. Given the likelihood of underestimation on the expenditure side, data from the Superintendency of Isapres, Fonasa and the EPF were also used. The estimation method involved balancing the sources of financing with total private health expenditure. On the insurance side (Isapres and Fonasa), the amount these cover compared to total care from private providers was considered.

The production of private health services is primarily consumed by households, with the rest going to meet demand from other productive industries. In contrast, the main destination of public health is government consumption, while a smaller portion is financed by individuals and therefore falls under household consumption; the rest goes to intermediate consumption.

Intermediate consumption: The main inputs came directly from companies. In the case of minor inputs, a value was inferred according to their relative importance to the cost structure of similar units reporting expenditure on this input. No inputs were inferred for public health, given the completeness of the data available from public accounts and the quality of information from mutuals.

Moreover, public and private health inputs, given the degree of aggregation of some cost items, had to be disaggregated to achieve the level of detail required for benchmark compilation.To do so, information from balance sheets providing data in suitable detail was used.

Once the structure of intermediate consumption was established for private health, it was applied to the universe using several information sources. For public health data was available for the whole universe.

The importance of own input in the industry's intermediate consumption should be noted. In fact, health services offered by the self-employed (doctors, dentists and other professionals) are required by other health activities, among them hospitals, clinics and medical centers.

Value added: For private health, the sample size for data on wages, fixed capital consumption, taxes and surplus was determined using surveys. In the case of public health, value added was determined using information at the universe level.

Health
(millons of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Health	2,903,394
Public administration	74,266
Financial services	4,942
Education	3,715
Rest of services	662
Rest of industries	232
Total domestic supply. Basic price	**2,987,212**
Valued added tax	178,037
Trade margin	
Total domestic supply. Purchaser price	**3,165,249**
Imported supply	
Value c.i.f.	72
Import duties	
Total imported supply. Basic price	**72**
Valued added tax	
Trade margin	
Total imported supply. Purchaser price	**72**
TOTAL SUPPLY. Purchaser price	**3,165,321**

DEMAND	
Intermediate demand	
Health	302,873
Public administration	18,226
Business services	15,541
Rest of services	13,271
Financial services	10,580
Rest of agriculture and forestry	9,136
Education	1,490
Wholesale and retail trade	401
Transportation	265
Fruit production	180
Rest of industries	61
Total intermediate demand. Purchaser price	**372,023**
Final demand	
Consumption	2,793,298
Gross fixed capital formation	
Inventory change	
Exports of goods and services	
Total final demand. Purchaser price	**2,793,298**
TOTAL DEMAND. Purchaser price	**3,165,321**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Health	302,801	72	302,873
Chemical, oil, rubber and plastic	132,766	128,436	261,203
Business services	204,583	0	204,583
Metallic products, machinery and equipment	35,006	84,653	119,659
Communications	35,466	0	35,466
Electricity, gas and water	35,291	0	35,291
Transportation	27,834	0	27,834
Restaurants and hotels	22,007	0	22,007
Paper and printed materials	13,811	2,041	15,853
Construction	11,092	0	11,092
Food, beverages and tobacco	11,079	2	11,081
Textile, wearing apparel and leather	6,460	518	6,979
Rest of products	23,216	347	23,563
Total intermediate consumption	**861,413**	**216,070**	**1,077,483**

Value added

Components	
Wages	1,017,961
Taxes	13,707
Subsidies	-148
Gross surplus	813,707
Total value added	**1,845,227**
Total output value added. Producer price	**2,922,709**
Total gross output. Basic price	**2,922,709**

N. EDUCATION

N.1. Background

Education services include teaching provided at every level, from pre-school and primary through secondary and post-secondary, including technical-vocational training and other educational services. These services are provided by both public and private agents, which receive different treatment in terms of national accounts. For this purpose, the industry consists solely of providers of educational services, and does not include the Ministry of Education (Mineduc), which is measured within the public administration.

The function of public education is to provide educational services for free or a price equivalent to zero in economics terms, that is non-market production, similar to the public administration. Therefore, production goes mainly to government consumption, as the government purchases and "consumes" these services on households' behalf.

In public education, pre-school education involves infant and child care centers, supervised and financed by the national board of child care centers (*Junta Nacional de Jardines Infantiles*, Junji). At the school level, no distinction is made between primary and secondary education, since these take place in the same establishments. A line is drawn between schools according to how they are financed and therefore supervised: municipal schools (run by local city governments), subsidized schools (privately owned and run), and "delegated management", (*administración delegada*), a term that refers to technical-vocational high schools owned by business or other associations, which also receive public subsidies. At the post-secondary level, there are 16 public universities, financed primarily by direct fiscal credits, which form part of a council in which all university presidents are represented (*Consejo de Rectores de las universidades chilenas*).

Private education provides services at an economically significant price that is it is a market output going to household consumption.

In private education, pre-school education includes private child care centers. The school level includes private establishments receiving no subsidies, whose main source of financing comes from households. Post-secondary education includes technical training centers, professional institutes and private universities, which may or may not belong to the *Consejo de Rectores*. The national training institute (*Instituto Nacional de Capacitación*, Inacap) is considered in a category by itself, given its important share of this industry.

Private education also includes extra-curricular education, provided by language academies, university preparatory schools, drivers, music dance and other schools, and the industry developed by independent educational professionals, with no supervision from the ministry, since these are not part of the formal education system.

Educational industries by activities whose main goal is recreation are not included.

N.2. Information sources

For post-secondary education, accounting data was provided by most bodies, particularly public universities making up the universe. In contrast, at the school level, given the large quantity of agents, a sample design based on regional representation, using a census system for schools with the largest populations, was used.

For locally run schools, information on the universe came from the Mineduc. For the Junji and Inacap, direct information was available and particularly detailed in the case of input items. For schools under the delegated administration system, information on different inputs was gathered according to the type of technical education offered.

For universities, general balance sheets and an additional desegregation of inputs were requested, using a special survey. Although all public universities provided detailed information, some case studies were nonetheless carried out as well.

The non-formal education segment, which is not supervised by the ministry, posted the most deficits in terms of information. However, indirect figures on extracurricular education were gathered for this compilation, which made it possible to estimate production account variables.[29]

N.3. Compilation methods

Educational service outputs in the public sphere are determined using the sum of costs involved, that is, inputs plus value added, where the main component is teachers' wages. For private education, meanwhile, output mainly reflects registration and general fees paid out by households, and a small portion provided by the State. Once inputs, wages and taxes on production are subtracted, the residual represents gross surplus.

Sample design applied to subsidized and private schools was based on a systematic, random sample, using college directories ranked by registration numbers at the regional level.[30] In this case, the sample cost structure was applied to the rest of schools to get the universe.

For activities providing complete information (universe), intermediate consumption was calculated by aggregation, and items were determined by ranking inputs reported in balance sheets and/or surveys. This applied to the Junji, Inacap and public universities. At locally run schools, items from municipal management reports were used.

For technical training centers, professional institutes and private universities, information was available for almost 90% of the universe. The input structure obtained for these agents was applied to the remaining 10%. Meanwhile, to determine the output value, individual estimations were used, based on prices for similar bodies in terms of registration, courses offered and regional location.

Educational firms are exempted from VAT, and therefore do not subtract this tax from their purchases, so expenditures reported on their respective balance sheets reflect this concept. A value for VAT was calculated per product subject to VAT, using the rate in effect in 2003.

As mentioned, public education generates primarily non-market output, although it also shows some minimum levels of market production, posted under secondary output. These include services provided to firms and real estate rentals.

The output destination for education is determined by the nature of the service provided. To determine this, an analysis of each activity's products was conducted, with most going to household consumption and government. In some cases, for example, seminars, special courses, contracts with institutions and training offered by public universities, these were considered intermediate sales of public education. In the case of private education, intermediate use also involved training from Inacap, professional institutes and technical training centers, and professional driving courses offered by schools, as extracurricular education.

[29]/ For example, to estimate the university preparatory sector, figures from the University of Chile were used, based on the number of students registered to write university entrance examinations (Prueba de Selección Universitaria, PSU); drivers' schools were estimated using information from professional and non-professional licenses.

[30]/ In both cases, the registration sample represented about 7% of the universe and 8% in terms of output value.

Education
(millons of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Education	3,110,235
Business services	36,544
Rest of services	2,473
Health	478
Public administration	399
Rest of industries	35
Total domestic supply. Basic price	3,150,164
Valued added tax	147,351
Trade margin	
Total domestic supply. Purchaser price	3,297,515
Imported supply	
Value c.i.f.	1,012
Import duties	
Total imported supply. Basic price	1,012
Valued added tax	
Trade margin	
Total imported supply. Purchaser price	1,012
TOTAL SUPPLY. Purchaser price	**3,298,527**

DEMAND	
Intermediate demand	
Wholesale and retail trade	18,239
Education	12,487
Copper	10,994
Rest of services	8,303
Manufacture of chemicals, oil, rubber and plastic	6,267
Business services	6,236
Public administration	6,171
Pesca	5,941
Transportation	5,507
Manufacture of food, beverages and tobacco	5,434
Rest of industries	25,995
Total intermediate demand. Purchaser price	111,573
Final demand	
Consumption	3,186,954
Gross fixed capital formation	
Inventory change	
Exports of goods and services	
Total final demand. Purchaser price	3,186,954
TOTAL DEMAND. Purchaser price	**3,298,527**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Business services	254,088	0	254,088
Construction	61,328	0	61,328
Chemical, oil, rubber and plastic	37,464	9,058	46,522
Paper and printed materials	32,689	11,451	44,140
Electricity, gas and water	43,795	0	43,795
Communications	30,199	0	30,199
Restaurants and hotels	26,519	0	26,519
Financial services	24,018	947	24,965
Transportation	21,767	0	21,767
Education	11,475	1,012	12,487
Metallic products, machinery and equipment	7,829	2,031	9,860
Wholesale and retail trade	7,164	0	7,164
Rest of products	15,752	3,311	19,063
Total intermediate consumption	574,087	27,810	601,897

Value added

Components	
Wages	2,199,275
Taxes	3,271
Subsidies	-659
Gross surplus	364,960
Total value added	2,566,846
Total output value added. Producer price	3,168,743
Total gross output. Basic price	3,168,743

O. OTHER PERSONAL AND SOCIAL SERVICES

O.1. Background

These services include a heterogeneous set of industries, mainly oriented to household consumption. To describe them suitably, they must be defined according to the range of coverage of their services and then according to the purposes and characteristics of their output.

"Other" personal and social services exclude health and education services, which are covered under their respective activities. Thus, other services are a residual group including personal, social and leisure services. Leisure services include the production, distribution and exhibition of films, television and radio services, independent artists. They also include a wide range of other leisure services provided by: gymnasia, tennis courts and ski resorts, stadiums, country clubs, sports clubs, horse racing, and pool rooms, among others. Social services primarily include private non-profits institutions (*Instituciones privadas sin fines de lucro*, NPISH), focusing on homes for the elderly and children; firefighters; the Red Cross; female volunteers; mutual assistance agencies, and other charities. It also includes unions, religious and political organizations, research institutes and cultural, recreational and craft associations. This industry also includes waste management, sanitation and other similar industries. Personal services bring together a wide range of service producers, such as laundries, hairdressers, funeral homes, banquet and other home services.

Given the nature of these industries and products, most go to final consumption of households. However, part is financed by other producers, as occurs in radio and television, where the main income is generated by advertising sales.

O.2. Information sources

The main source is the National Statistics Bureau's Eserv and with it the financial statements requested from the main companies. Eserv data covers a 570-company sample. As part of survey design and to obtain the most representative and accurate sample possible, given wide-ranging sales, the largest units were included for census (universe), and the rest sampled (at random). The cut-off point for each span was determined by sales.

Other data came from the Ministry of Justice, which requires the filing of non-profits' financial statements.For data for the industry universe, income tax data and VAT were used, to infer data for production, purchases, wages and depreciation, among others.

O.3. Compilation methods

Gross output: Since this industry includes for profit and non-profits, different methods for calculating output are required. In fact, at the sample level, output for companies with surplus was valued according to the income they declared in the Eserv surveys. For non-profits, output this was calculated as the sum of costs declared in the balance sheets reported by the Ministry of Justice. The output universe for market entities was based on income tax data. Destination, as mentioned, corresponded mainly to households; secondly, in similar proportion, to intermediate demand; and in the case of non-profits, to a lesser degree, to the rest of the world.

Intermediate consumption: Cost structure estimates were based on survey information.

For generic input items not specified in the Eserv, data from financial statements providing the most detail were used for each activity. For typical input items, balance sheets and import data were used, and estimates made given the characteristics and information available on each source.

Value added: In the case of market producers, value added components came from the Eserv survey. For non-profits, value added came from balance sheets presented to the Ministry of Justice. In both cases (for profit and non-profit) projection onto the universe was based on the share of each value added item within output.

Other personal and social services
(millons of 2003 pesos)

PRODUCT MARKET

SUPPLY	
Domestic supply	
Rest of services	2,162,686
Public administration	63,583
Restaurants and hotels	12,621
Electricity, gas and water	10,471
Resto industria manufacturera	680
Rest of industries	565
Total domestic supply. Basic price	2,250,606
Valued added tax	119,821
Trade margin	
Total domestic supply. Purchaser price	2,370,427
Imported supply	
Value c.i.f.	38,706
Import duties	
Total imported supply. Basic price	38,706
Valued added tax	
Trade margin	
Total imported supply. Purchaser price	38,706
TOTAL SUPPLY. Purchaser price	**2,409,132**

DEMAND	
Intermediate demand	
Business services	238,087
Public administration	146,165
Rest of services	93,603
Communications	52,219
Wholesale and retail trade	35,531
Manufacture of food, beverages and tobacco	12,433
Manufacture of chemicals, oil, rubber and plastic	11,406
Financial services	10,779
Restaurants and hotels	10,729
Manufacture of paper and printed materials	9,037
Rest of industries	31,799
Total intermediate demand. Purchaser price	651,788
Final demand	
Consumption	1,710,037
Gross fixed capital formation	
Inventory change	
Exports of goods and services	47,308
Total final demand. Purchaser price	1,757,345
TOTAL DEMAND. Purchaser price	**2,409,132**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Business services	197,668	0	197,668
Chemical, oil, rubber and plastic	64,856	32,322	97,177
Rest of personal services	58,364	35,239	93,603
Paper and printed materials	39,269	13,037	52,306
Transportation	38,282	0	38,282
Construction	35,184	0	35,184
Restaurants and hotels	34,509	0	34,509
Food, beverages and tobacco	31,441	1,645	33,086
Metallic products, machinery and equipment	13,557	19,189	32,746
Wholesale and retail trade	17,311	11,595	28,905
Communications	26,139	0	26,139
Electricity, gas and water	22,363	0	22,363
Rest of products	79,191	15,846	95,037
Total intermediate consumption	658,136	128,872	787,008

Value added

Components	
Wages	998,092
Taxes	30,487
Subsidies	-794
Gross surplus	471,780
Total value added	1,499,565
Total output value added. Producer price	2,286,574
Total gross output. Basic price	2,286,574

P. PUBLIC ADMINISTRATION

P.1. Background

For measurement purposes, this industry has been divided into three activities: Central Government, pension offices; and municipalities:

i) Central Government: Establishes taxes, responsible for national defense, guarantees the efficient functioning of the social and economic systems and is responsible for providing collective services that benefit the community overall. It is organized into ministries and different agencies or units, whose finances are included in the annual national budget law for the public sector. Some public entities are excluded,[31] because their products are included under other industries.

ii) Pension offices: Including the national pension office (*Instituto de Normalización de Previsión*, INP), the national health plan, Fonasa, and offices responsible for family allowances.[32]

iii) Municipalities: 342 local governments countrywide. Their financing is shared and their management autonomous; nonetheless, they are covered by the national budget law (*Ley de Presupuestos*).

P.2. Information sources

Most information came from the CGR, which include budgetary statements for the public and municipal activities.

Itemized records in CGR reports establish total expenditures on specific inputs, which can then be assigned to specific outputs. Information from surveys applied to municipalities and public institutions is also used, to obtain intermediate consumption output details.

P.3. Compilation methods

Gross output: Non-market, government output is valued at explicit costs. Non-market outputs includes individually assigned community services and are typical of government's role, and services with a specific, identifiable destination, assigned for free or at an economically insignificant price.

Collective output provided for free to the population is assigned to government final consumption; non-market output sold at an economically insignificant price is assigned to final household consumption, intermediate consumption or exports, as applicable. The government also produces secondary goods and services for the market, whose use may be final, intermediate, or export, depending on the good or service.

Intermediate consumption: Includes expenditures that by law are mainly "consumption goods and services" or "production goods and services", and others posted as current transfers, that were detailed using additional data, to establish the intermediate consumption arrays required for each activity. Unlike the 1996 benchmark compilation, intermediate consumption does not include expenditure on products and/or services transferred directly to households, such as school food services and subsidies to drinking water consumed by low-income households, among others.

Value added: This was calculated as the sum of expenditures on wages and other taxes on production. It also includes an economic estimation of fixed capital consumption, based on the useful life of assets for own and collective usage.

[31]/ The following institutions are excluded: The national mint, or *Casa de Moneda*, included under manufacturing; the national economic development agency, known as CORFO; and the *Dirección de Crédito Prendario*, included under financial institutions; health service supply center, included under the wholesale and retail trade.

[32]/Private non-profits, which manage social security services.

Public administration
(millons of 2003 pesos)

PRODUCT MARKET

SUPPLY		DEMAND	
Domestic supply		Intermediate demand	
Public administration	3,179,262	Wholesale and retail trade	15,893
Health	5,437	Manufacture of metallic products, machinery and equipment	4,126
		Rest of agriculture and forestry	2,378
		Rest of services	703
		Transportation	205
		Manufacture of chemicals, oil, rubber and plastic	88
		Public administration	68
Total domestic supply. Basic price	3,184,698	Financial services	13
Valued added tax			
Trade margin			
Total domestic supply. Purchaser price	3,184,698	Total intermediate demand. Purchaser price	23,474
Imported supply		Final demand	
Value c.i.f.	51	Consumption	3,144,741
Import duties		Gross fixed capital formation	
		Inventory change	
Total imported supply. Basic price	51	Exports of goods and services	16,534
Valued added tax			
Trade margin			
Total imported supply. Purchaser price	51	Total final demand. Purchaser price	3,161,275
TOTAL SUPPLY. Purchaser price	**3,184,750**	**TOTAL DEMAND. Purchaser price**	**3,184,750**

INDUSTRY COSTS

Costs by input origin
Main inputs. Purchaser prices

Intermediate consumption	Domestic	Imported	Total
Business services	303,787	19,177	322,964
Metallic products, machinery and equipment	83,679	106,077	189,756
	142,698	3,467	146,165
Electricity, gas and water	102,836	145	102,981
Chemical, oil, rubber and plastic	70,094	30,856	100,950
Construction	87,790	140	87,930
Communications	49,037	2,567	51,604
Paper and printed materials	46,174	4,730	50,904
Restaurants and hotels	48,428	1,776	50,204
Transportation	32,441	7,371	39,812
Financial services	33,489	3,584	37,073
Health	18,226	0	18,226
Rest of products	50,761	401	51,162
Total intermediate consumption	1,069,440	180,291	1,249,731

Value added

Components	
Wages	1,824,694
Taxes	5,290
Subsidies	-9
Gross surplus	384,742
Total value added	2,214,717
Total output value added. Producer price	3,464,448
Total gross output. Basic price	3,464,448

Q. OWNER-OCCUPIED DWELLINGS

Q.1. Background

This industry generates a flow of actual or imputed income, derived from the service of providing housing to households. In practice, it measures the value of rentals actually paid by renters, plus the imputed value of housing inhabited by owners.

Q.2. Information sources

Data for this industry's production account comes from indirect sources, since by nature nothing is available at the establishment level. For this compilation, information from internal revenues' tax evaluations of real properties was used, Casen survey data on rents, and information from the 2002 census (*Censo de Población y Vivienda*, 2002), CPI rental prices, and National Statistics Bureau figures for the number of households.

Q.3. Compilation methods

To calculate the this industry's output, information came from internal revenue's (SII) housing stock data, which includes the values of real estate goods, and permits estimates of the country's housing stock in terms of area, number of housing units, estimated value, and type of municipal area (*comuna*).

To estimate GO the housing stock was used, with a proxy for market price based on a corrected fiscal valuation. This, combined with the value for total rentals, was estimated using a housing stock coefficient, classified by area and value, and by level of the municipal group. These results were compared to rental estimates by Casén, number of households and updated EPF.

Intermediate consumption mainly reflects repairs to housing and, to a lesser degree, common expenditures. The value of the former was estimated in the construction industry, since this forms part of its coverage, based on the housing stock and its age. Common expenditures include disbursements on building and condominium-style management, garden maintenance, elevator maintenance, electricity, water and other services. Itemization of these expenditures was based on household data.

Value added components were estimated as follows:

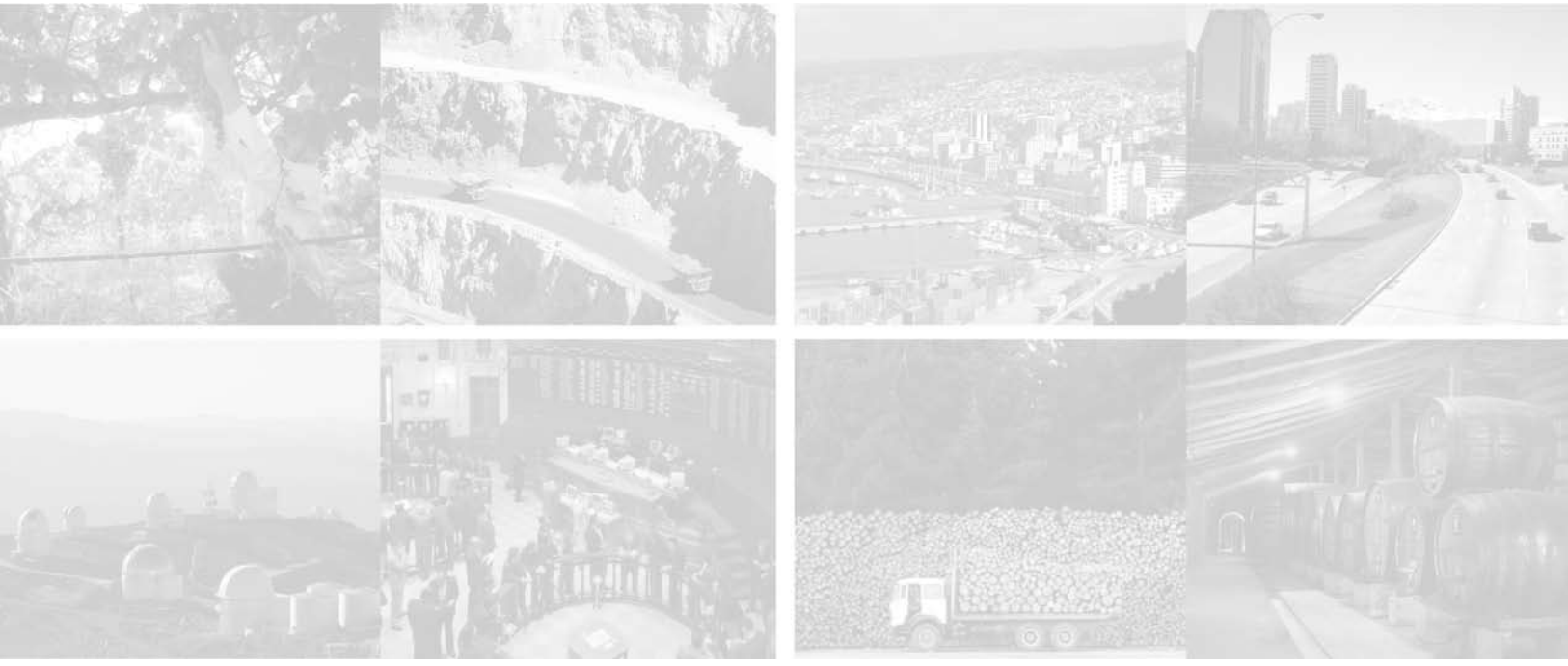
- Wages: These were obtained using the structure of common wages. They primarily reflect wages to building supervisors, housekeepers, and cleaning staff, maintenance and other services.
- Taxes on production: This is mainly property tax applied to homes and comes from tax data.
- Gross surplus: These reflect the difference between gross output and the rest of production costs.

Owner-occupied dwellings
(millons of 2003 pesos)

PRODUCT MARKET			
SUPPLY		**DEMAND**	
Domestic supply		Intermediate demand	
Owner-occupied dwellings	3,673,741		
Public administration	804		
Total domestic supply. Basic price	3,674,545		
Valued added tax			
Trade margin			
Total domestic supply. Purchaser price	3,674,545	Total intermediate demand. Purchaser price	
Imported supply		Final demand	
Value c.i.f.		Consumption	3,674,545
Import duties		Gross fixed capital formation	
		Inventory change	
Total imported supply. Basic price		Exports of goods and services	
Valued added tax			
Trade margin			
Total imported supply. Purchaser price		Total final demand. Purchaser price	3,674,545
TOTAL SUPPLY. Purchaser price	**3,674,545**	**TOTAL DEMAND. Purchaser price**	**3,674,545**

INDUSTRY COSTS					
Costs by input origin **Main inputs. Purchaser prices**				**Value added**	
Intermediate consumption	Domestic	Imported	Total	Components	
Construction	584,520	0	584,520	Wages	53,077
Electricity, gas and water	36,756	0	36,756	Taxes	352,367
Chemical, oil, rubber and plastic	22,599	100	22,699	Subsidies	
Metallic products, machinery and equipment	18,242	3,474	21,715	Gross surplus	2,572,279
Business services	19,847	0	19,847		
Communications	4,330	0	4,330		
Financial services	3,615	0	3,615	Total value added	2,977,723
Paper and printed materials	1,723	210	1,933		
Agrícolas	603	0	603		
				Total output value added. Producer price	3,673,741
Total intermediate consumption	692,234	3,784	696,018	Total gross output. Basic price	3,673,741

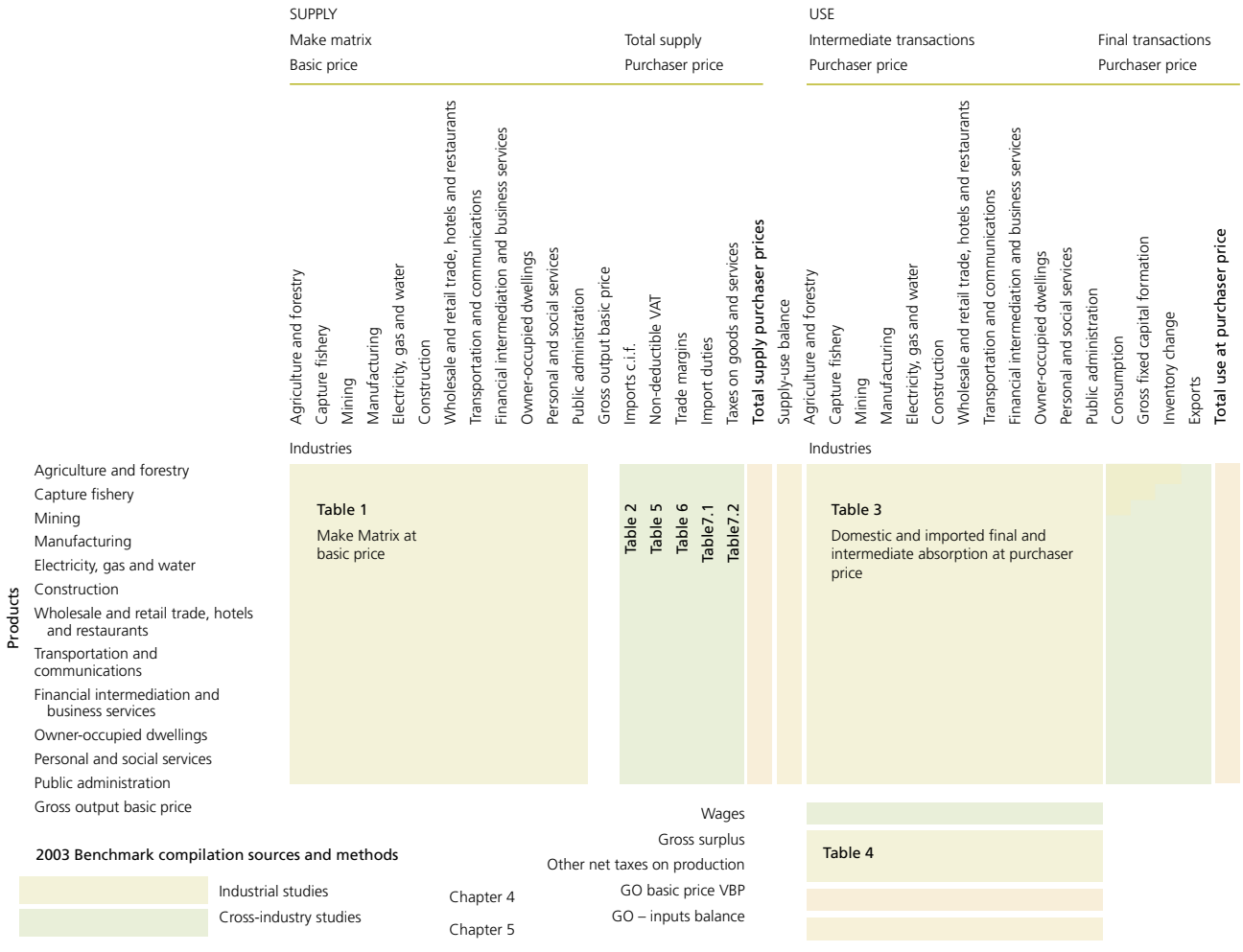
5. Cross-industry studies



5. Cross-industry studies

Cross-industry studies complement the GDP by industry measures. For this purpose, this chapter presents the following seven cross-industry studies: foreign trade, fixed capital formation, inventory change, household consumption, taxes on the production of goods and services, employment and wages and small producers. The part of supply-use tables (SUT) covered by cross-industry studies include arrays (vectors or matrices) for intermediate and final use. The scope of these studies is presented in table 5.1.

TABLE 5.1
Scope of cross-industry studies



These studies share the following characteristics:

- They measure flows using more than one source and method, to complement, contrast and validate the final results. This is based on exhaustively mining the data available for the Chilean economy.
- They are approached from a dual product-industry perspective.
- They use reconciliation matrices to balance the distribution of flows for which the sole data available is the total column or total row (the matrix's borders).

The industry or column approach is based on income tax data, economic surveys and financial statements. The product or row approach uses information from surveys of goods and services. For employment and small business, rows include census and household survey data.

Details on the main methodological aspects of these studies follow.

5.1. Foreign trade

5.1.1. Background

The study of foreign trade quantifies goods and service transactions between residents and non-residents of the economy. This study involves supply-use tables for imports and exports, and considers all associated valuation components.

Imports and exports involve transfers of the owners of goods and service provision between residents and non-residents. These operations may be posted at f.o.b. (free on board) or c.i.f. (cost, insurance and freight) values.In the first case, merchandise is posted at free on board value according to the international mode of transportation at the port from which it is shipped. In the second, the value of the merchandise reflects the destination port, and therefore includes the cost of freight and international insurance. In Chile's national accounts, imports are valued at the c.i.f. price and exports, at the f.o.b. price.

Apart from this definition, national accounts include different valuation components, according to their place or time when the transaction occurs. For imports, valuation components include: c.i.f., import duties,[1] taxes and margins, all of which amount to the purchaser value or imported market product. The sum of value c.i.f. and import duties constitutes the import value at basic price; if specific product taxes (tobacco and fuel, in Chile's case) are added, the equivalent of the producer price is obtained.

In the case of exported goods and services, the f.o.b. valuation is equivalent to the purchaser price. When exports are carried out through the wholesale and retail trade, there is a difference between the f.o.b. value and the producer price, which reflects the trade margin. Where there are no taxes on exports, the producer value is equivalent to the basic value.

The shaded area of table 5.2 provides a summary of the results of foreign trade operations, in the framework of supply-use tables for Chile's goods and services, in 2003.

[1]/ Import duties include all duties and royalties affecting imports, except those involving charges for services provided or domestic taxes applied to the importer or the import.

TABLE 5.2
The foreign trade study and its role in SUT. Aggregate results
(billions of 2003 pesos)[2]

				Intermediate use						Final use							
		c.i.f.	Duties	Total supply	Goods	Trade	Services	Imputations	Intermediate use	Households	Non-profit institutions (NPISH)	Government	Gross fixed capital formation	Inventory change	Exports	Total	Total use
Domestic products basic price	Goods			46,005	13,256	718	3,666	0	17,641	7,332	0	55	6,909	460	13,608	28,365	46,005
	Trade			1,771	167	219	494	0	880	591	0	0	0	0	299	891	1,771
	Services			41,221	5,847	3,623	7,393	1,740	18,603	12,607	491	6,066	0	0	3,453	22,618	41,221
	Total			88,997	19,271	4,559	11,533	1,740	37,123	20,530	491	6,122	6,909	460	17,360	51,873	88,997
Imported products basic price o	Goods	13,302	526	13,828	6,119	620	1,279	0	8,018	3,044	0	0	2,292	0	473	5,809	13,828
	Trade	443	0	443	248	161	33	0	443	0	0	0	0	0	0	0	443
	Services	2,837	0	2,837	105	32	1,920	0	2,057	779	0	0	0	0	0	779	2,837
	Total	16,581	526	17,107	6,473	813	3,233	0	10,518	3,823	0	0	2,292	0	473	6,589	17,107
Taxes on imported products	Goods			721	13	0	46	0	59	620	0	0	38	3	0	662	721
	Trade			0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Services			0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total			721	13	0	46	0	59	620	0	0	38	3	0	662	721
Domestic prod.	Trade margin			4,205	759	63	395	0	1,217	2,179	0	0	37	20	752	2,988	4,205
Imported prod.	Trade margin			4,159	1,115	20	296	0	1,431	1,843	0	0	795	-9	99	2,728	4,159
Domestic products basic price	Goods			52,942	14,183	799	4,575	0	19,557	11,282	0	66	7,182	495	14,360	33,385	52,942
	Trade			1,861	167	219	510	0	896	666	0	0	0	0	299	965	1,861
	Services			42,274	5,855	3,623	7,646	1,740	18,864	13,384	491	6,081	0	0	3,453	23,410	42,274
	Total			97,076	20,206	4,641	12,730	1,740	39,317	25,332	491	6,146	7,182	495	18,112	57,759	97,076
Imported products basic price	Goods			18,707	7,248	639	1,622	0	9,509	5,506	0	0	3,125	-5	572	9,199	18,707
	Trade			443	248	161	33	0	443	0	0	0	0	0	0	0	443
	Services			2,837	105	32	1,920	0	2,057	779	0	0	0	0	0	779	2,837
	Total			21,987	7,601	832	3,575	0	12,008	6,286	0	0	3,125	-5	572	9,978	21,987

5.1.2. Information sources

For foreign trade transactions, the following information sources are available (table 5.3).

TABLE 5.3
Information sources for foreign trade

Information	Source
Exports and imports of goods	National customs service (*Servicio Nacional de Aduanas*)
Duty-free records	Zofri and Parenazón
Sample of public and private mail registries	Central Bank of Chile
Manual of Foreign Exchange Regulations	Central Bank of Chile
Industrial surveys	Central Bank of Chile
Tourist expenditure survey	National tourism service (*Servicio Nacional de Turismo, Sernatur*)
Income statements (form 22)	Internal revenue (Servicio de Impuestos Internos, SII)

The records of the national customs service (*Servicio Nacional de Aduanas*) are the main source of data[3] on imported and exported goods. Each foreign trade statement identifies the agent by its national tax number (*Rol Único Tributario*, RUT), the import (using a customs code)[4] and the c.i.f. or f.o.b. value of the transaction.

[2]/ Subset of supply and use tables presented in chapter 2.
[3]/ These cover almost 96% of imported goods and 94% of exported goods.
[4]/ Customs codes reflect international product classifications used by the national customs service.

The second source of information on goods is duty-free reports. These are regions receiving special tax treatment, to stimulate economic development, and are located in the northern port of Iquique and the southern point of Punta Arenas (Zofri and Parenazón).

The third source of information on goods comes from import reports through minor routes. These are imports via public or private post that receive a special tax treatment.[5] These routes are managed by the national customs service. To deal with records for the 2003 benchmark compilation, a sample was analyzed, to determine a structure that was then projected onto the whole universe.

On services, the best information comes from the appendices of the Foreign Exchange Regulation Manual (*Compendio de Normas de Cambios Internacionales*) which includes data on the purpose of purchases and sales in foreign currency on the formal exchange market.[6] As part of these regulations, figures for foreign exchange operations carried out by sea and coastal water transport and insurance, among others, are available quarterly.

Another source for information about trade in services comes from business and professional service data posted in additional income tax declarations (SII). Surveys on tourist spending are compiled by Sernatur, for estimating outbound and receptive tourism, classified under other goods and services within the SUT. Finally, annual Central Bank surveys on exports and imports of information technology, communication and transportation service exports are also used.

5.1.3. Methods

The method for preparing the imported use matrix, destinations (intermediate consumption, gross fixed capital formation and final consumption) and the export matrix are described in this section.

As table 5.2 indicates, for the benchmark compilations, detailed matrices are prepared for intermediate consumption and gross fixed capital formation of imported goods.[7] For the export matrix, only the benchmark compilation were developed during the preliminary analysis, but is published as a column vector, along with final consumption.

Import use matrix

The first step in preparing the import use matrix consisted of determining the import matrix, with goods and services in the rows and purchasing industries in the columns. Importers, however, are not necessarily the users. In 2003, goods imports by the wholesale and retail trade accounted for around 43% of total supply, which was largely absorbed by other industries. Moreover, some industries outside the wholesale and retail trade also import, through atypical commercial intermediation. To assign products and services going to intermediate consumption, gross fixed capital formation and final use, it was necessary to define a hypothesis based on the nature of the good or service. This involved defining the type of use assigned to a given good or service and the production functions to which it was related.

The first stage of preparing the imported use (intermediate and final) matrix at c.i.f. prices, therefore involved identifying when imports were carried out directly by the user of the good (direct purchases). For example, textile machinery imported by the textile industry was treated as capital formation by the industry. For the other cells, the use hypothesis was applied to the user and destination industries for each product.

This allocation process recognized goods with dual use, which is those with more than one destination, intermediate or final. For example, vehicle fuel imports partly constitute final household consumption and partly intermediate consumption of the transport industry, among others.

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[5]/ These are imports worth less than US$500, sent via public or private postal service.

[6]/ The Central Bank of Chile is empowered to request reports on these operations, as per articles 39-53 of its constitutional law.

[7]/ The study included the preparation of customs duties matrices, which were reconciled to 593 products.

The use matrix obtained from this process was compared to destination information from production accounts. However, this information did not distinguish completely between the use of imported goods and services, since in general it was aggregate, making it necessary to complement it with foreign trade data, particularly when it came to product items.

It should be noted that purchaser price values were used to reconcile. These are the starting values for production accounts. To do so, the matrix of import duties, margins and taxes must be added to the import value c.i.f.

This was how the basic value was defined. The source of customs duties was customs records. Each import transaction involves a tariff value that was later reconciled with the amount actually collected by the government. In 2003, according to the regulations then in effect, merchandise imports were subject to a general 6% tax[8] on the customs value.[9]

The next valuation component deals with imported trade margins, which were distributed based on the commercial value calculated for each cell of the imported use matrix. The commercialized base came from subtracting total direct purchases and imports identified as inter-company transfers. The latter were imports carried out by one company which then passes the good on to related companies.

Finally, other taxes were considered: the value added tax (VAT) on imports and special taxes on imported fuels and tobacco. Both were charged to the basic import price to obtain the equivalent producer price. VAT, however, only affects final consumers and exempted industries. All the tax data was compared and reconciled with the respective fiscal revenues.

Export use matrix

In general, preparing the export matrix is less complex than imports. In fact, exports constitute a use or direct final demand, and, unlike imports, no use data other than sales operations must be calculated. Moreover, the value f.o.b. reflects the purchaser or final price.

The export purchaser price is usually equivalent to the producer price and a basic price. Exports are primarily sales made directly by producers. Only some agricultural products are intermediated by the wholesale and retail trade to any significant degree. In these cases, the margin is estimated, so the producer value differs from the purchaser value.

The export matrix[10] places product and service exports in the rows and exporting industries in the columns. In this sense, export data based in records from the national customs service are not changed when balancing goods supply and use. The exceptions were iron and copper where data in the production account was prepared using surveys and accounting records from the universe of producing units.

Service exports were corrected using information gathered through the surveys mentioned in table 5.3 for the benchmark compilation.

[8]/ This rate, however, allows rebates that may involve complete exemption from duties, the result of international treaties. The actual duty paid stood at around 3% (Becerra, 2006).

[9]/ This consisted of the cost of the merchandise and all expenditures arising from its transportation to the point of entry into Chile. The customs value generally coincided with the c.i.f. value.

[10]/ In 2003, there were 344,381 transactions involving exports, which gave rise to the export matrix.

5.2. Gross fixed capital formation

5.2.1. Background

The purpose of the study of gross fixed capital formation (GFCF) was to estimate investment by industry, and thus expand the analysis incorporated into the GFCF column vector presented in table 5.4. Information on investment to this level of detail contributed to the analysis of the strength of this industry and its impact on the productive capacity of every industry.

TABLE 5.4
Supply-use tables and gross fixed capital formation
(billions of 2003 pesos)

			Intermediate use					Final use							
		Total supply	Goods	Trade	Services	Imputations	Intermediate use	Households	NPISH	Government	GFCF	Inventory changes	Exports	Total	Total use
Domestic products, purchaser price	Goods	52,942	14,183	799	4,575	0	19,557	11,282	0	66	7,182	495	14,360	33,385	52,942
	Trade	1,861	167	219	510	0	896	666	0	0	0	0	299	965	1,861
	Services	42,274	5,855	3,623	7,646	1,740	18,864	13,384	491	6,081	0	0	3,453	23,410	42,274
	Total	97,076	20,206	4,641	12,730	1,740	39,317	25,332	491	6,146	7,182	495	18,112	57,759	97,076
Imports, purchaser price	Goods	18,707	7,248	639	1,622	0	9,509	5,506	0	0	3,125	-5	572	9,199	18,707
	Trade	443	248	161	33	0	443	0	0	0	0	0	0	0	443
	Services	2,837	105	32	1,920	0	2,057	779	0	0	0	0	0	779	2,837
	Total	21,987	7,601	832	3,575	0	12,008	6,286	0	0	3,125	-5	572	9,978	21,987

To achieve the objective, the investment matrix for the Chilean economy for the 2003 benchmark compilation was prepared (table 5.5). This posted GFCF by investor industry and by imported capital good. Thus, the total for columns reveals industry investment, while the total for rows investment by product type.

TABLE 5.5
Investment matrix
(billions of 2003 pesos)

		Industry												
		Agriculture and forestry	Fishing	Mining	Manufacturing	Electricity, gas and water	Construction	Wholesale and retail trade, restaurants and hotels	Transportations and communications	Financial and company services	Owner-occupied dwellings	Other services	Public administration	Total GFCF
		1	2	3	4	5	6	7	8	9	10	11	12	
Products	Agriculture	110	0	0	0	0	0	0	0	0	0	0	0	110
	Manufacturing	26	11	78	70	28	0	59	44	34	0	21	23	394
	Construction	116	8	1,009	492	512	18	169	786	377	2,030	312	847	6,678
	Domestic products	**252**	**19**	**1,087**	**562**	**540**	**19**	**228**	**830**	**411**	**2,030**	**333**	**870**	**7,182**
	Agriculture	3	0	0	0	0	0	0	0	0	0	0	0	3
	Manufacturing	97	68	636	787	230	16	351	440	281	0	177	39	3,122
	Imports	**100**	**68**	**636**	**787**	**230**	**16**	**351**	**440**	**281**		**177**	**39**	**3,125**
	Domestic and imported products	**352**	**87**	**1,723**	**1,350**	**770**	**35**	**580**	**1,270**	**691**	**2,030**	**510**	**908**	**10,307**

5.2.2. Information sources

Table 5.6 provides sources used to build the investment matrix, distinguishing between those providing data by product and by industry.

TABLE 5.6.
Information sources for gross fixed capital formation

Information	Source
Information by product	
Private investment project list	Capital goods corporation (*Corporación de Desarrollo Tecnológico de Capital goods*, CBC)
Building permits	National Statistics Bureau (*Instituto Nacional de Estadísticas*, INE)
Civil engineering survey	Central Bank
Imports c.i.f. of capital goods	National customs service (*Servicio Nacional de Aduanas*)
Information by industry	
Income statement (form 22)	SII
FECU reporting form (*Ficha Estadística Codificada Uniforme*)	Superintendency of Securities and Insurance (SVS)
Domestic manufacturing survey (*Encuesta Nacional Industrial Anual*, ENIA)	National Statistics Bureau
Service survey (*Encuesta de Servicios*, Eserv)	National Statistics Bureau
Wholesale and retail trade survey (*Encuesta de Comercio*, ECOM)	National Statistics Bureau
Tourism survey (*Encuesta de Alimentación y Alojamiento Turístico*, Esaat)	National Statistics Bureau
Industrial surveys	Central Bank
Information from balance sheets	Superintendency of Banks and Financial Institutions (*Superintendencia de Bancos e Instituciones Financieras*, SBIF)
Budgetary statements from the public sector	Chilean comptroller's office (*Contraloría General de la República*, CGR)
Budgetary statements from the municipal sector	CGR
General balance sheets and notes to financial statements	*Cajas de compensación* and hospitals governed by the occupational health and safety law (*Ley de Accidentes del Trabajo*, LAT)
State financial management report (*Informe Gestión Financiera del Estado*)	CGR

5.2.3. Methods

The investment matrix was prepared for 80 industries and 70 products. The process began by estimating two components: investment in construction by industry (row of the investment matrix for construction works) and total investment for domestic and imported products (column total in the investment matrix). Using these results, the rest of the matrix cells were estimated, to represent investment by industry in domestic products, except for investment in construction and investment by industry under imported products.

Details on the method used to obtain these estimates follow, labeled for the clarity's sake, as investment in construction, total investment by product, and investment by industry and product (except construction).

i) Investment in construction

Investment in construction consists of building for housing, non-housing and civil engineering (OI). Their estimation was based on the first three sources listed in table 5.6. For investment in non-residential building by industry, building permits were identified using the RUT of the person ordering the job. The same criteria were used to estimate investment in civil engineering by industry, except for concessioned works, where investment was assigned to the destination industry. Residential building, meanwhile, is investment in owner-occupied dwellings. Finally, the sum of these three components yields investment in construction by industry.

ii) Total investment by product

To estimate total investment by product, we distinguished between investment in domestic and imported products. As part of preparing production accounts, the first resulted from assigning products to investment, as per their nature and main characteristics. Thus, capital goods produced by the agriculture and forestry, manufacturing and construction industries were identified. Specifically, in the case of capital goods for plantations and livestock on the hoof, reproduction and dairy, allocation was based on output studies and industrial surveys. Results were based on the data for planted areas and an estimation of livestock, classified as livestock capital mass. In the case of manufactured capital goods, data came from production details in the ENIA. Capital goods produced by domestic manufacturers include: farm machinery, refrigeration equipments, vehicles and boats assembled in Chile, chassis and final components in trailers, warehouse and metallic structures. Investment in construction, meanwhile, included residential and non-residential building and the civil engineering estimated for this industry in its production account. This calculation was reconciled with total industry investment, as explained in the previous paragraph.

Total investment by import, meanwhile, resulted from the imported GFCF matrix estimated using foreign trade data. As section 5.1 explains, this was primarily based on customs data, which matches the importer (agent) RUT and the specific customs item (production) to each transaction. To estimate the matrix, destination hypotheses for each import were developed, according to the nature of the good and the buyer's RUT.

iii) Investment by industry and by product (except construction)

To estimate the rest of the cells in the matrix, total investment by product (resulting from ii) was distributed across investing industries. To do so, goods were classified, into specific and generic categories, with the former directly attributable to investment by a specific industry (for example, textile machinery), and the latter, those that could be associated with many industries (such as computers). These were classified according to the breakdown for each product.

To define investment in domestically produced specialized goods according to the product breakdown, the industry to which each belonged as a fixed asset was identified, and a value assigned. Likewise, investment in imported goods was sorted into products purchased directly, that are, becoming a fixed asset in the purchasing industry, and an investment amount assigned.

Investment in generic goods was sorted according to a structure estimated for investment by industry (relative share of each industry in total investment). To estimate this structure, three sources were used: income tax declarations, FECU statistics, and information from industrial surveys, balance sheets and other statistics (all information sources by industry, listed in table 5.6). Of the first, information was obtained for the universe of industries (except owner-occupied dwellings), while for the rest data came from specific activities or company samples. Three alternative estimates were therefore carried out for investment by industry to calculate this structure. The method used, by source, was:

- Income statement. The relevant information for income-based estimates came from immobilized assets and sales, 2002 and 2003, according to Chile's Economic Industry Classifier (*Clasificador de Actividad Económica*, CAE) and taxpayer. An initial calculation was carried out using the original information, but results were incoherent, so statistical filters were applied to the data. For this purpose, taxpayers were stratified by sales, as large, medium, small and microbusinesses. Then, for each stratum, the immobilized asset to taxpayer income was depurated by pruning extreme values.

This depurated sample was projected onto the universe, and then analyzed in terms of the immobilized assets to annual incomes per year and taxpayer ratios. Using these results, the stock of immobilized assets for 2002 and 2003 was obtained, and GFCF estimated per industry as the difference between both periods.

- FECU reporting form. Investment was estimated based on the FECU reporting form, taking into consideration changes in fixed assets per company, with the reconciliation price and volume corrected according to national accounts methods. A similar process was used on non-reporting companies, but detailed financial statements were used to determine investment flows accounting. These investment flows were projected for the whole universe, estimated using figures from the FECU reporting form, based on companies operating income, by industry, and on income information.

- Surveys and other statistics. The third alternative for estimating investment in fixed assets by industry involved surveys for some activities, and balance sheets and other information sources, for others. National Statistics Bureau surveys were available for manufacturing, wholesale and retail trade, and services, and Central Bank surveys for capture fishery, mining, electricity, gas and water, transportation and communications, education and health. To apply sample investment data to the whole universe, operating income and other income data was used. Estimates for financial services, administration, health and public education, and owner-occupied dwellings were based on data in balance sheets and other statistics. Financial industry investment was estimated using balance sheets. In the case of the public sector, real investment data was used, mostly from budgetary balance statements. Finally, for owner-occupied dwellings, data on investment in residential development came from the construction industry production account.

To cross-check estimates based on these sources, the structure of investment by industry was determined to assign generic domestic and imported goods to industries. The latter relied on data from calculating the import destination matrix.

Finally, once investment had been estimated by industry and product, covering each of the cells in the investment matrix, a general reconciliation took place, to ensure results by industries (columns) and products (rows) came out even. This procedure was applied to industries for which the total invested was available, as the result of their accumulation account. Later, estimates by product with the results for total investment by product were squared. Upon completion, the process produced the investment matrix, distinguishing between domestic and imported product components, and investment by industry.

5.3. Inventory change

5.3.1. Background

The study for inventory change validates supply and use balances, expanding the analysis to a time horizon of more than the year in which the supply of goods is produced. In fact, goods produced or imported in any given period will not necessarily be consumed in the same period. To estimate inventory change, a matrix placing output in the rows, and industries in columns was prepared. Table 5.7 presents inventory change as a column vector, in the context of supply-use tables at the purchaser price. As with any other goods and service use component, inventory change is disaggregated at basic, producer and purchaser prices.

TABLE 5.7
Supply-use table and inventory change
(billions of 2003 pesos)

			Intermediate use					Final use							
		Total supply	Goods	Trade	Services	Imputations	Intermediate use	Households	NPISH	Government	GFCF	Inventory changes	Exports	Total	Total use
Domestic products, purchaser price	Goods	52,942	14,183	799	4,575	0	19,557	11,282	0	66	7,182	495	14,360	33,385	52,942
	Trade	1,861	167	219	510	0	896	666	0	0	0	0	299	965	1,861
	Services	42,274	5,855	3,623	7,646	1,740	18,864	13,384	491	6,081	0	0	3,453	23,410	42,274
	Total	97,076	20,206	4,641	12,730	1,740	39,317	25,332	491	6,146	7,182	495	18,112	57,759	97,076
Imported products, purchaser price	Goods	18,707	7,248	639	1,622	0	9,509	5,506	0	0	3,125	-5	572	9,199	18,707
	Trade	443	248	161	33	0	443	0	0	0	0	0	0	0	443
	Services	2,837	105	32	1,920	0	2,057	779	0	0	0	0	0	779	2,837
	Total	21,987	7,601	832	3,575	0	12,008	6,286	0	0	3,125	-5	572	9,978	21,987

The output-industry inventory change matrix, distinguishes between domestic and imported origin, and is only prepared for benchmark compilations. In annual estimated compilations, information provided by annual industry surveys and income tax returns is used.

Note that inventory change is not a residual variable in the process of balancing supply - use of goods and services. Like any demand component, the variable is independently estimated using different information sources. As a result, the initial value in the inventory change matrix may be changed, as with consumption or investment.

5.3.2. Information sources

Information sources are listed in table 5.8.

TABLE 5.8
Information sources used to calculate inventory changes

N°	Information	Source
1.	ENIA	National Statistic Bureau
2.	ECOM	National Statistic Bureau
3.	Esaat	National Statistic Bureau
4.	Industrial surveys	Central Bank
5.	Financial statements	SVS
6.	Income statement (form 22)	SII

Sources 1 to 4 reflect information from sample establishments. Based on these surveys, we can infer that the best data coverage is in manufacturing, which provides details for goods in the form of finished and in-process products, such as stocks of raw materials. There is, however, no information on the stocks of goods for resale, or details on whether they are domestic or imported. For other industries, the wholesale and retail trade and non-wholesale and retail T, the only inventory change data does not identify goods or their origin.

The data from income (form 22), does not distinguish by product or origin, but is available for all industries and covers the universe of industries.

5.3.3. Methods

Inventory change, as table 5.9 reveals, breaks down into raw materials and materials (10.1), products for resale or products held by the wholesale and retail trade (10.2), and finished and in-process products (10.3). All this can also be divided between domestic and imported products. From the accounting perspective, this means that the supply-use account requires details presented in table 5.9.

TABLE 5.9
Supply-use table. Details of inventory change
(purchaser price, billions of 2003 pesos)

Supply		Use	
1. Gross output	88,997	6. Intermediate consumption	51,325
2. Imports c.i.f.	16,581	7. Final consumption	38,255
3. Non-deductible VAT	3,770	8. Fixed capital formation	10,307
4. Import duties	526	9. Exports	18,685
5. Trade margin	8,364	10. Inventory change	491
6. Taxes on products	825	10.1. Raw materials and materials	38
		10.1.1. Domestic products	87
		10.1.2. Imports	-49
		10.2. Products held by the wholesale and retail trade	28
		10.2.1. Domestic products	3
		10.2.2. Imported products	25
		10.3. Products held by producers	379
		Final corrections from balancing	46
Total supply	119,063	Total use	119,063

This, however, is just an initial view of the methodological detail required for calculations. In practice, three components of inventory change must be broken down: by origin and into matrix components which reveal inventory change by industry (columns) and by product (rows). This level of detail is based on information categories and availability, described below.

The first step in compilation is to enter the amounts reported by sources. The data were translated into average 2003 prices, using the Consumer Price Index (CPI), with the change calculated as the difference in stocks at the beginning and end of the exercise.

The universe was then expanded using data from the sources mentioned, and as a benchmark the output from the production accounts for each industry. The aggregate data on stocks was then split into three categories presented table 5.9. These categories came from the information available for each industry. Manufacturing was based on implicit coefficients within the ENIA, while other industries relied on a hypothesis using figures taken from preparing their cost structures. Mining was an exception, thanks to survey data for the entire universe and to the product level.

Once stock categories were designed, data to 70 products and by domestic or imported origin were developed. The method for reaching this degree of detail was different for each category, as explained below.

- For the category, stocks in progress, the level of detail depended on information from manufacturing, which provided output data by product, for those items produced domestically.

- In the raw materials category, the degree of detail came from a selection of the five most significant intermediate goods within the cost structure of each industry. Origin was determined using coefficients implicit in the origin of each input selected (whether domestic or imported, origin can be identified in each cost structure).

- For resales, by commercial and non-commercial activities, it was assumed that the same general coefficient for inventory change for all products distributed according to the margin matrix structure (products in rows, commerce-related industries in columns) held. The structure of the margin matrix likewise made it possible to identify a coefficient for domestic and imported origin.

The data thus estimated was then run through a general supply-use balance seeking a consistent relationship between components for each product. If for one product there was excessive demand, then a positive level of stocks was not sustainable, leading to modifications through an iterative process. After successive iterations, a stock level that had been reconciled and was consistent with general balance was finally achieved.

5.4. Household consumption

5.4.1. Data

Household consumption involves expenditures on new goods (durables[11] and non-durables) and services[12] made by resident households, and are related to final use tables in their valuation layers, being the component weighing the most within final demand column vectors. Table 5.10 demonstrates the insertion of the household consumption column array in the supply-use table.

The purpose of the study was to validate household consumption by applying the commodity flow method, which defines consumption as the result of goods and services supply-use balances. To do so, data from the family budget survey (EPF) 1996-1997 was used, updated to 2003. The results offer a reference point for comparing figures and testing consumption estimates for some products.

[11]/ Durables include: furniture, metallic products, electric and non-electric machinery and transportation material.

[12]/ These include tourism, which involves all expenditures on goods and services by non-resident visitors while in the compiling economy (credits), and expenditures by resident travelers while outside the economy of origin (debits).

TABLE 5.10
Supply-use table and household consumption
(billions of 2003 pesos)

		Intermediate use						Final use							
		Total supply	Goods	Trade	Services	Imputations	Intermediate use	Households	NPISH	Government	GFCF	Inventory changes	Exports	Total	Total use
Domestic products, purchaser price	Goods	52,942	14,183	799	4,575	0	19,557	11,282	0	66	7,182	495	14,360	33,385	52,942
	Trade	1,861	167	219	510	0	896	666	0	0	0	0	299	965	1,861
	Services	42,274	5,855	3,623	7,646	1,740	18,864	13,384	491	6,081	0	0	3,453	23,410	42,274
	Total	97,076	20,206	4,641	12,730	1,740	39,317	25,332	491	6,146	7,182	495	18,112	57,759	97,076
Imported products, purchaser price	Goods	18,707	7,248	639	1,622	0	9,509	5,506	0	0	3,125	-5	572	9,199	18,707
	Trade	443	248	161	33	0	443	0	0	0	0	0	0	0	443
	Services	2,837	105	32	1,920	0	2,057	779	0	0	0	0	0	779	2,837
	Total	21,987	7,601	832	3,575	0	12,008	6,286	0	0	3,125	-5	572	9,978	21,987

5.4.2. Information sources

Table 5.11 summarizes sources used to estimate the 2003 benchmark compilation.

TABLE 5.11
Information sources

Information	Source
1. EPF	National Statistics Bureau
2. CPI	National Statistics Bureau
3. *Encuesta de Caracterización Socioeconómica* (Casén)	Ministry of Planning (Mideplán)
4. Population estimation 2003	ECLAC, National Statistics Bureau
5. Household income estimation, institutional national accounts	Central Bank

The purpose of the latest EPF, prepared by the National Statistics Bureau between August 1996 and July 1997, was to identify changes in the structure of household spending on consumption, to develop a new family spending basket for changing the CPI base year. Price indices for the EPF basket were obtained using National Statistics Bureau data.

The Casén is a study prepared every two years by the Ministry of Planning (Mideplán), offering data on households and labor.

The National Statistics Bureau carries out population growth projections using 2002 data on population and housing, registering vital statistics such as the fertility rate, infant mortality, immigration, etc.

Finally, household incomes are also estimated as part of national accounts.

5.4.3. Methods

As mentioned, household consumption in the 2003 Benchmark Compilation was estimated using the commodity flow approach, based on the supply-use tables. This involved using domestic and imported supply and the nature of the good to determine a use hypothesis for final consumption. Thus, goods such as cigarettes were allocated to household consumption, for example, while others such as fuel were considered partly final and partly intermediate consumption. The definitive level of final consumption was determined after balancing to ensure the balance of supply-use tables.

In the balancing process, along with supply data and the use hypothesis, estimation for the household consumption column vector, based on the updated 2003 EPF, was also considered. This estimation was used to compare and validate consumption data yielded by the flow of goods and services in supply-use tables.

Two estimates were used to update the EPF: the first estimation applied deflators and population growth, while the second used expansion factors by income quintile. Both were done for 70 products, taking household consumption to almost 83% of the total of balanced final consumption.

5.5. Tax matrix

5.5.1. Background

The purpose of the study of the tax matrix was to complete valuation of domestic and imported goods and services at market prices. The tax matrix determines the difference between the matrix at producer price and the matrix at basic price.

TABLE 5.12.
Supply-use table. Details of product taxes
(billions of 2003 pesos)

		Intermediate use							Final use							
		VAT	Taxes on goods and services	Total supply	Goods	Trade	Services	Intermediate use	Households	NPISH	Government	GFCF	Inventory changes	Exports	Total	Total use
Domestic products, purchaser price	Goods	1,906	825	2,731	167	19	514	700	1,771	0	10	236	15	0	2,032	2,732
	Trade	90	0	90	0	0	16	16	74	0	0	0	0	0	74	90
	Services	1,053	0	1,053	8	0	253	261	778	0	14	0	0	0	792	1,053
	Total	3,049	825	3,874	175	19	783	977	2,623	0	25	236	15	0	2,898	3,874
Imported products, purchaser price	Goods	721	0	721	13	0	46	59	620	0	0	38	3	0	662	721
	Trade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	721	0	721	13	0	46	59	620	0	0	38	3	0	662	721

The homogenous valuation of transactions in the benchmark matrix is a basic requirement for national accounts. Taxes and subsidies on products, like distribution margins, alter technical input-output coefficients, introducing an element alien to the structure of production. The latter is best represented in the valuation at basic price, which best reflects the relationship between input and output volumes. Thus, the distinction in each supply-use table cell between the tax components is essential to analyze the structure of production.

Some taxes (for example, property taxes and licenses) bear no relationship to volumes produced, making input-product desegregation unfeasible. Taxes on products, however, are proportional to the supply-use of the merchandise and are incorporated into the producer price.

In the Chilean case, the tax matrix includes two kinds of taxes affecting merchandise: VAT and other taxes on fuels and tobacco.

VAT involved an 18% charge on goods and service sales until 1998, 19% from October 2003 on. This is the tax generating the most revenues in Chile and its inclusion or exclusion influenced the value added determined for each industry. Since value added is calculated as the difference between production and intermediate consumption valued at purchase price, if the latter include VAT, the structure of the technical coefficients will change.

Because of its effect on supply-use tables, two kinds of VAT must be considered: deductible and non- deductible.The first is applicable to affected industries, whose goods are subject to VAT[13] and discount VAT on their purchases of inputs or capital goods.[14] Deductible VAT is charged along the product distribution chain from primary supply to final use in the same year, and is finally charged to exempted persons and industries (those subject to VAT), since the successive intermediaries who can deduce it simply pass it along the chain, without affecting their costs. Non-deductible VAT, meanwhile, will be the VAT paid by exempt industries and final consumers.

To estimate VAT by user and product, two kinds of taxation are used: theoretical and actual. Theoretical taxation is calculated as the tax rate based on the amount subject to taxation for a given period, that is, the amount of taxes that it is assumed should be paid, given the set of transactions posted (purchases and sales). Actual taxation reflects the real amount collected in the same period. One might expect theoretical and actual taxation to be equal. However, national accounts data do not always represent the purchases made in a given period, since part of intermediate consumption may be covered by inventory change in a previous period, which does not generate tax income in the year under study. Moreover, fiscal debits lag one month behind the calendar year and fiscal credits include remnants from previous periods and those deferred to the next. Because of this, tax revenues do not necessarily coincide with theoretical amounts.

Meanwhile, the fuel tax[15] affects the initial sale or import of automobile gasoline and diesel oil. The taxable base consists of the quantity of fuel expressed in cubic meters. The tax is 1.5 UTM (monthly tax units[16]) per cubic meter in the case of diesel oil and 6 UTM per m^3 in the case of gasoline. Moreover, fuels are subject to a variable tax that moves with the international oil price.[17]

The tobacco tax is applied to sales to the final consumer and ranges from 51% to 61%, depending on the product.[18]

[13]/ VAT paid by the producer or through fiscal debit.
[14]/ Reimbursed VAT or fiscal credit.
[15]/ Law 18,502.
[16]/ The monthly average for this accounting unit was 29,739 Chilean pesos in 2003.
[17]/ Law 20,063.
[18]/ Decree law 828.

Box 5.1
Treatment of VAT in Benchmark compilation

As with the two previous years (1986 and 1996), for the 2003 benchmark compilation, both the purchaser price and the producer price matrices registered goods and service flows net of deductible VAT. This reflected the fact that the gross output valuation has the following effects:

1) Given that the true cost to the VAT-deducing producer does not include the tax, posting transactions with VAT means not recognizing the true cost that producers subject to VAT pay for goods and services, which is less than those exempt and final consumers.

2) The VAT paid is the difference between debits and credits for sales and purchases, with the latter including capital purchases. If gross valuation is chosen, then the difference between the imputed VAT (debits on sales minus credits on intermediate consumption), increments the gross surplus, because VAT is not considered to exist in capital purchases. When stocks rise and/or capital goods are purchased, this difference finances the VAT included in valuing these assets.

3) Exports are not subject to VAT, and therefore the credit on export producer purchases is not deducted through operations; in contrast, they receive a reimbursement equivalent to the payment made for their purchases.

4) The treatment described in point 3) significantly reduces exporters' and foreign trade value added, whose gross margin is estimated using a value for purchases to be exported without VAT, since this tax is recovered.

Given that in practice the industries subject to VAT act as mere collectors of the tax, it would be inaccurate to include a payment for VAT that would alter their share of GDP.

This means that the value of a specific good will vary depending on whether it is subject to non- deductible VAT to the user, that is, the valuation is not standard. Because of this, the matrix for intermediate consumption valued at basic prices should be more standard and coefficients more reliable, if distortions caused by taxes have been eliminated.

5.5.2. Information sources

There are two main sources: Chile's national treasury (*Tesorería General de la República*), whose data records the actual amounts collected, and Chilean customs (*Servicio Nacional de Aduanas*), which posts the payment of specific taxes on imported goods.

5.5.3. Methods

In the benchmark compilation years, matrices are prepared for domestic and imported industry-product taxes.

In the case of VAT, a non-deductible value added tax matrix was developed, which placed exempted products in rows and exempted users in columns, these being those subject to payment, who cannot apply a fiscal credit to cover the amounts involved.

VAT was estimated on the purchaser price value of purchases by exempted industries and households, who effectively pay it. The existence of exempted products, such as transportation, public education and public health also had to be considered. These items do not pay VAT when they are used by households. Keeping this in mind, it was possible to determine theoretical taxation, applying the tax rate to the tax base given by purchaser price transactions.[19]

After calculation, the theoretical VAT was compared to the total annual amount collected (actual VAT), after taking into consideration that by their nature, actual and theoretical VAT for some products, such as electricity, gas, water and tobacco (enforcement, small number of suppliers, impossible to maintain stocks), are the same.For other products a distribution base for theoretical VAT was used to distribute the remaining amount actually collected (VAT collected minus cells in the VAT matrix where theoretical equals actual VAT). The result was the net matrix for VAT collected according to its destination: capital formation, intermediate consumption and inventory change in exempted industries, household consumption and government.

In the case of the fuel tax, the amount actually gathered was distributed among intermediate and final users.

Finally, for the tobacco tax, the actually amount collected was assigned to household consumption.

5.6. Employment and wages

5.6.1. Background

The main purpose of this study was to define payment of the labor factor or wages, as part of value added in different industries. Similarly, this included a complete analysis of employment from the industry point of view, considered essential to validate wage figures.The study also permitted an analysis of industrial productivity. As part of this process of balancing wages and employment, the figures obtained for cost structures of industry (production account) were compared to wage and employment figures from tax data. Both measures are covered in the reconciliation matrices, as analyzed under point.

5.6.2. Information sources

Information used to prepare the employment and wage balance matrix is presented in table 5.13, and can be described as follows.

TABLE 5.13
Information sources on employment and wages

Information		Source
1.	Income statement (form 22)	SII
2.	Wage statement (form 1887)	SII
3.	ENIA	National Statistics Bureau
4.	Eserv	National Statistics Bureau
5.	ECOM	National Statistics Bureau
6.	Esaat	National Statistics Bureau
7.	Studies: agriculture, construction, transportation	External Consultants
8.	Industrial surveys	Central Bank
9.	2002 population and housing census	National Statistics Bureau
10.	National employment survey (ENE)	National Statistics Bureau

[19]/ From use matrices, balanced at purchaser prices.

Information sources to prepare production accounts provide additional data on wages and employees.

Wage data for each industry can reflect different levels of accuracy, which depend on the information available. When the production account reflects a census of establishments, it is more reliable.

Tax sources involve forms 22, income, and 1887, wages. The first, which is completed by all taxpayers working in industries subject to "first category" (*primera categoría*, companies) taxation, the relevant variable is wages, which includes gross wages (including taxes). Meanwhile, form 1887, filled out by individuals or legally constituted bodies active in the business industry and paying wages, provides information on the industry, the employer, income paid, taxes retained, months worked, months paid, months paid net of pension and other taxes, and employment.

To estimate employment, census and ENE figures are available that provide information on industries. This national survey covers a sample of 36,000 households, which change with each quarterly observation. This yields employment data by industry, region and occupational category.

5.6.3. Methods

The information from forms 1887 and 22 was corrected separately, yielding two wage estimates. To complete the wages section in form 1887, pension and other taxes were estimated and added to net values. Likewise, for form 22, wages were inferred for those taxpayers who reported operating income but no wage data. Moreover, taxpayers who declare presumed income or are registered as crafts workshops were added.

To estimate employment, 2002 census data was updated to 2003 using changes from the ENE.

Reconciliation matrices were then applied, as shown in table 5.14.

CUADRO 5.14
Matrices for cross-checking employment (E) and wages (R)
(billions of 2003 pesos)

R. Wage reconciliation matrix

Industry	01	02	03	04	05	06	07	08	09	10	11	12	Tax base	Cross-checked data
01. Agriculture and forestry	14												485	709
02. Fishing	$R_{(1,1)}$												119	207
03. Mining													693	813
04. Manufacturing	-14												2,698	2,535
05. Electricity, gas and water	$R_{(4,1)}$												241	198
06. Construction													1,009	2,298
07. Wholesale and retail trade, restaurants and hotels								$R_{(8,8)}$					3,008	3,133
08. Transportation and communications								-109					1,218	1,653
09. Business and financial services								109					3,763	3,463
10. Owner-occupied dwellings									$R_{(9,8)}$				0	53
11. Personal servicess													3,029	4,215
12. Public administration													1,753	1,825
P. Production accounts														21,101
C. Cross-checked	693	207	813	2,466	198	2,229	2,782	1,709	3,417	53	4,164	1,825		
	709	207	813	2,535	198	2,298	3,133	1,653	3,463	53	4,215	1,825	21,101	

E. Employment reconciliation matrix (thousands of employees)

Industry	01	02	03	04	05	06	07	08	09	10	11	12	Tax base	Census data	Cross checked data
01. Agriculture and forestry	165			18									186	366	369
02. Fishing													27	50	56
03. Mining													46	66	48
04. Manufacturing				-22									438	517	416
05. Electricity, gas and water													22	30	18
06. Construction													234	329	529
07. Wholesale and retail trade, restaurants and hotels													635	813	634
08. Transportation and communications													215	289	347
09. Business and financial services													542	485	476
10. Owner-occupied dwellings													0		6
11. Personal services													534	741	782
12. Public administration													269	224	235
13. Unspecified other	-165												0		
P. Production accounts	369	85	49	420	0	500	589	540	462	0	591	235		3,910	3,915
C. Cross-checked	369	56	48	416	18	529	634	347	476	6	782	235	3,915		

Wage and employment cross-checking matrices (R and E)

These matrices (table 5.14) make it possible to balance wage and employment data from different sources. Both were obtained by analyzing values and quantities. Reconciliation involved comparing wage and employment figures to obtain consistent results for economic activities to 80 industries. The data to be reconciled in the employment matrix involved remunerated employment. Then the self-employed, employers and unremunerated relatives were added.

Wage cross-checking matrix (matrix R)

Table 5.14 presents the wage (R) balance matrix, consisting of wage data by industry giving rise to production accounts in columns, and wage data from tax sources in rows. Both sources were compared in the reconciliation matrix (R) where each cell (Rij) is a correction value resulting from the total column and row once they have been equaled and reconciled.

For example, four correction cells can be examined. The cells $R_{(1,1)}$ and $R_{(4,1)}$ represent a correction for wages between fruit farming and the manufacture of agricultural preserves. Both industries are highly integrated and wages are often declared without clearly identifying the employee's activity. The cells $R_{(8,8)}$ and $R_{(9,8)}$ meanwhile, represent the correction to wages between the communications and business service industries. In these cases, taxpayers' own declarations tend to present problems, when they confuse their service providing industry with the industry of their main customer.

Reconciliation to 80 industries involved taking information quality into consideration, in terms of sample size, coverage and degree of informality.Reconciliation of wage data involved a parallel correction to employment data: each time a wage amount was corrected, so was the associated employment, estimated using the average wage and average time worked, using data from form 1887.

Employment cross-checking matrix (matrix E)

Given the results of the wage and employment matrices associated with each source (tax and production accounts), the process of reconciling employment data began. This was based on the same criteria as applied to wages, and the analysis enriched using data for average wages and number of employees per company.

Data from production accounts and taxation were compared to 80 industries. A second stage of reconciliation also considered updated census data involving aggregated figures for industries classified under the International Standard Industrial Classification Revision 3 (ISIC rev.3) to two digits.

As with the R matrix, reconciliation in this matrix required determining the correction value for each cell, necessary to achieve equal and reconciled columns and rows. Table 5.14 E matrix presents two numeric examples for employment: the cells $E_{(1,1)}$ and $E_{(13,1)}$, reflecting the fact that for the agriculture and forestry industry, employment data from production accounts had better coverage than tax data, because of the high level of informality, so employment in the tax sourced data had to be increased.

The second example involves cells $E_{(1,4)}$ and $E_{(4,4)}$, which represent a correction to employment, given that these industries are highly integrated (for example, fruit farming with the manufacture of fruit preserves), so employment declared may not clearly indicate the industry involved and there are also problems with taxpayers' own classifications.

Moreover, note that for agriculture, fruit farming, livestock and forestry, employment from production accounts considered equivalent employment, which was turned into average annual employment (average number of employees hired per year).[20]

Given the above, employment estimates using production account data was accepted for the following industries: agriculture, public administration, construction, fruit farming, livestock, forestry, public health, sea and coastal water transport and air transportation.

Note also that the differences in the data from compared sources arising from different definitions of employment, sample coverage and universe makes a direct comparison of the results of employment balancing with data from the national census and household surveys impossible. These results strictly reflect the specific study for the 2003 structure of production with regard to wages and should not be used for comparative analysis with other sources.

[20]/ This avoids double entry of seasonal employees.

5.7. Small producers

5.7.1. Background

The study of small producers was only carried out for the 1996 and 2003 benchmark compilation years. The 2003 study brought in new information sources, such as form 1887. Its purpose was to measure the supply of goods and services, and cost structures of microbusinesses (ME) and the self-employed (TCP), which, given their size and participation in the informal economy, are not registered in the statistics typically used to measure domestic output. Moreover, employment and wage estimates in this study validated results on a national scale. The microproducer industry is part of domestic supply and domestic and imported intermediate use tables.

The definition of small producers is based on standard criteria used in publications specializing in this subject, which stratify companies using two variables: sales volume and number of employees. According to the first criterion, microbusinesses are defined as units billing less than 2,400 UF per year, while the second criterion is applied to units with less than 10 employees. Moreover, TCPs are identified as those people with no remunerated personnel, exercising independently in an industry. The only exceptions to this occur in agriculture, fishing and mining, since these criteria are not applicable to determine size or the information available does not allow this classification.

TCPs and the MEs generally appear across the spectrum of industries. However, some natural barriers prevent their existence in branches such as highly complex manufacturing or those with enormous economies of scale. Thus, most TCPs and MEs are concentrated in service industries, especially those involved with the wholesale and retail trade (40% of microbusinesses and 30% of the self-employed). By order of importance, transportation and communications follow with 14%, then business services with 13% of all small producers.

Table 5.15 summarizes the gross output of the two strata of small producers, which contribute about 8.3% of Chile's gross product.

TABLE 5.15
Gross output for small producers
(millions of 2003 pesos)

Industry	Microbusinesses	Self-employed	Total workers
Agriculture	397,829	51,358	449,186
Fishing	206,257	26,852	233,109
Mining	7,366	2,754	10,121
Manufacturing	271,335	317,714	589,048
Electricity, gas and water	2,359	0	2,359
Construction	230,744	282,083	512,827
Wholesale and retail trade, restaurants and hotels	1,188,898	548,789	1,737,688
Transportation and communications	659,631	760,844	1,420,475
Business and financial services	692,294	603,014	1,295,308
Other personal and social services	634,536	1,265,698	1,900,235
Total GO	**4,291,249**	**3,859,107**	**8,150,356**

5.7.2. Information sources

Information sources are provided in table 5.16.

TABLE 5.16
Information sources from the ME and TCP study

Information	Source
Income statement (form 22)	SII
Wage statement (form 1887)	SII
2002 population and housing census	National Statistics Bureau
ENE	National Statistics Bureau
Survey of small producers	National Statistics Bureau
Supplementary income survey (*Encuesta suplemantaria de ingresos*, ESI)	National Statistics Bureau

The survey of small producers is done by the National Statistics Bureau on request of the Central Bank, to determine the cost structure for each of the 80 industries in which MEs and TCPs could participate.

Industrial information comes from 2003 benchmark compilation production accounts.

5.7.3. Methods

The main aspects of the 2003 Benchmark compilation method dealt with calculating gross output and determining the cost structure of production for these strata.

To estimate formal production from the ME and TCP universe, tax data was used. The data platform used included several codes for the way different kinds of taxpayers declare: first and second category income statements, presumed income, craft workshops and article 14 bis (simplified taxation). The last four elements are key to determining the self-employed and microbusiness universe, since most of this segment falls within these categories. However, information from internal revenue covers formal companies.

To correct possible underestimation in tax data, the contribution from informal activities was estimated using 2002 population census statistics, quantifying the self-employed in each industry. These figures were contrasted with data from the 2003 ESI, yielding more robust data for manufacturing, the wholesale and retail trade, construction and other personal and social services.

Moreover, using form 22 data it was possible to identify branches where microbusinesses were present. Some, however, were excluded from this study because they were considered wrongly classified. In fact, in some branches for technical reasons it is unlikely that industries could take place on such a small scale as microbusiness, so these units were reclassified by comparison with other sources.

In the case of agriculture, fishing, mining, construction, private health, transportation and education, direct data from industrial production accounts were used, because they already had enough coverage and specific characterization about small producers, in particular: agriculture, offshore fishing, small-scale mining and independent employees in health, transportation and education.

Moreover, it was necessary to infer output from declarations of presumed income, craft workshops and article 14 bis (simplified taxation). For industries associated with the wholesale and retail trade, meanwhile, only trade margins were included under gross output, with these being obtained by subtracting sales costs from sales incomes.

Finally, information was balanced, to reconcile data from the different sources used to calculate output. Employment variables in particular required special treatment to reconcile statistics from internal revenue (forms 22 and 1887)

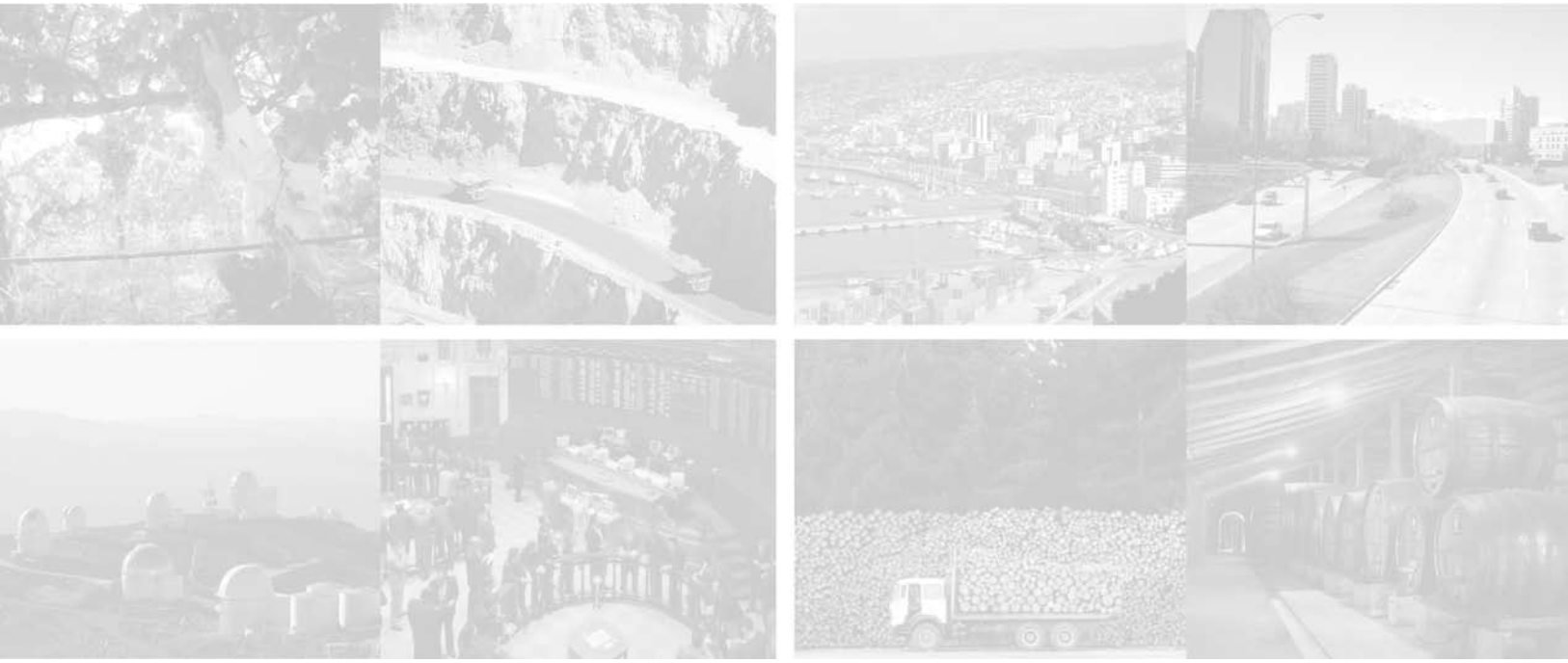
and the National Statistics Bureau (census and ENE). Per capita income was also studied and corrected, according to results for income and the Central Bank survey.

In terms of determining the structure of output, microbusinesses and the self-employed required information on: intermediate consumption, wages and net taxes. Most information came from surveys, completed by industry statistics for industries not preparing surveys (such as agriculture, fishing and mining).

The quality of the statistics for the smallest companies is limited, so it was necessary to clean up survey responses in several areas. There were classification problems between the self-employed and micro-businesses, errors in classifying productive industries and in values assigned (out of the probable range).

Survey results were contrasted with two other sources: income information and that from the results of accounts by industry. This sought to balance results and complete cost structures.

6. Presentation of results



6. Presentation of results

This chapter presents the results of the 2003 benchmark compilation, including GDP, supply-use tables, and output and investment matrices. They are presented for 12 products by 12 industries; a complete version, 73 by 73, is available on the CD-ROM that accompanies this publication.

To facilitate reading, table 6.1 provides an overview of results. This is a schematic version of GDP, supply-use tables and the investment matrix, reduced to three products by three industries (goods, Trade and services and other), which, moreover, includes imputations as a nominal industry.

TABLE 6.1

2003 Benchmark compilation

Overview of the structure of the results table
(billions of pesos)

(A)

MAKE MATRIX. Basic price

Product	Industry (j)				Total
	1	2	3	4	
1 Goods	45,862	82	61		46,005
2 Trade	833	9,135	166		10,135
3 Services and other	470	667	40,083		41,221
GO basic price VBP	**47,165**	**9,884**	**40,311**	**0**	**97,361**

(B)

DOMESTIC SUPPLY. Purchaser price

Products	Gross production, basic prices	Trade margin	Taxes on goods and services	Non-deductible VAT	Domestic supply purchaser price
	1	2	3	4	5
1 Goods	46,005	4,205	825	1,906	52,942
2 Trade	1,771	0	0	90	1,861
3 Services and other	41,221	0	0	1,053	42,274
Total	**88,997**	**4,205**	**825**	**3,049**	**97,076**

(C)

IMPORTED SUPPLY. Purchaser price

Products	Imports c.i.f.	Duties	Sales margin	Non-deductible VAT	Imported supply, purchaser price
	1	2	3	4	5
1 Goods	13,302	526	4,159	721	18,707
2 Trade	443	0	0	0	443
3 Services and other	2,837	0	0	0	2,837
Total	**16,581**	**526**	**4,159**	**721**	**21,987**

(D)

DOMESTIC INTERMEDIATE USE

Products (i)	Industry (j)				Total
	1	2	3	4	
1 Goods	14,183	799	4,575	0	19,557
2 Trade	167	219	510	0	896
3 Services and other	5,855	3,623	7,646	1,740	18,864
Total	**20,206**	**4,641**	**12,730**	**1,740**	**39,317**

(E)

IMPORTED INTERMEDIATE DEMAND

Products (i)	Industry (j)				Total
	1	2	3	4	
1 Goods	7,248	639	1,622	0	9,509
2 Trade	248	161	33	0	443
3 Services and other	105	32	1,920	0	2,057
Total	**7,601**	**832**	**3,575**	**0**	**12,008**

(F)

DOMESTIC FINAL USE

Household consumption	NPISH consumption	Government consumption	Gross fixed capital formation	Inventory change	Exports	Total	Total domestic use
11,282	0	66	7,182	495	14,360	33,385	52,942
666	0	0	0	0	299	965	1,861
13,384	491	6,081	0	0	3,453	23,410	42,274
25,332	**491**	**6,146**	**7,182**	**495**	**18,112**	**57,759**	**97,076**

(G)

IMPORTED FINAL DEMAND

Household consumption	NPISH consumption	Government consumption	Gross fixed capital formation	Inventory change	Exports	Total	Total imported use
5,506	0	0	3,125	-5	572	9,199	18,707
0	0	0	0	0	0	0	443
779	0	0	0	0	0	779	2,837
6,286	**0**	**0**	**3,125**	**-5**	**572**	**9,978**	**21,987**

Calculation of GDP (by industry of origin)	
Total industry value added	48,600
Imputations	-1,740
Adjusted value added	46,860
Net VAT collected	3,770
Import duties	526
Gross domestic product	51,156

(H)

VALUE ADDED

Value added	20,183	4,411	24,006	-1,740	46,860
Wages	6,759	2,786	11,556	0	21,101
Gross surplus	12,367	1,414	11,852	-1,740	23,893
Taxes on goods and services	825	0	0	0	825
Other net taxes on production	232	211	598	0	1,042
GO producer price	**47,990**	**9,884**	**40,311**	**0**	**98,186**
Taxes on goods and services	-825				-825
GO basic price	**47,165**	**9,884**	**40,311**	**0**	**97,361**

(I)

GROSS FIXED CAPITAL FORMATION. Domestic products

Products (i)		Industry (j)			Total
		1	2	3	
1	Goods	2,480	196	4,506	7,182
Total domestic		2,480	196	4,506	7,182

GROSS FIXED CAPITAL FORMATION. Imports

Products (i)		Industry (j)			Total
		1	2	3	
1	Goods	1,837	346	942	3,125
Total imported		1,837	346	942	3,125
Total domestic and imported		4,316	543	5,448	10,307

The link between this and the other tables in this chapter is presented in table 6.2.

TABLE 6.2
Relationships between tables

Modules from table 6.1		Related tables			
(A)	Make matrix		6.36		
(B)	Domestic supply		6.12	6.21	6.30
(C)	Imported supply		6.15	6.24	6.33
(B)+(C)	Total supply		6.8	6.18	6.27
(D)	Domestic intermediate use		6.13	6.22	6.31
(E)	Imported intermediate use		6.16	6.25	6.34
(D)+(E)	Total intermediate use		6.9	6.19	6.28
(F)	Domestic final use		6.14	6.23	6.32
(G)	Imported final use		6.17	6.26	6.35
(F)+(G)	Total final use		6.10	6.20	6.29
(H)	Gross Domestic Product / Value added	6.5	6.6	6.7	6.11
(I)	Investment matrix		6.37	6.38	6.39

The rest of the tables in this chapter are presented in the following order:

Industry-output details

6.3 Listed to 12 industries and products

6.4 Listed to 73 industries and products

GDP, by output, income and expenditure approaches

6.5 Gross Domestic Product, production approach

6.6 Gross Domestic Product, income approach

6.7 Gross Domestic Product, expenditure approach

Supply-use tables and make matrix

6.8 Total supply, purchaser price

6.9 Total intermediate use

6.10 Total final use

6.11 Value added

6.12 Domestic supply, purchaser price

6.13 Domestic intermediate use, purchaser price

6.14 Domestic final use, purchaser price

6.15 Imported supply, purchaser price

6.16 Imported intermediate use, purchaser price

6.17 Imported final use, purchaser price

6.18 Total supply, producer price

6.19 Total intermediate use, producer price

6.20 Total final use, producer price

6.21 Domestic supply, producer price

6.22 Domestic intermediate use, producer price
6.23 Domestic final use, producer price
6.24 Imported supply, producer price
6.25 Imported intermediate use, producer price
6.26 Imported final use, producer price
6.27 Total supply, basic price
6.28 Total intermediate use, basic price
6.29 Total final use, basic price
6.30 Domestic supply, basic price
6.31 Domestic intermediate use, basic price
6.32 Domestic final use, basic price
6.33 Imported supply, basic price
6.34 Imported intermediate use, basic price
6.35 Imported final use, basic price
6.36 Make Matrix, basic price

Investment matrix

6.37 Investment matrix, total capital goods, purchaser price
6.38 Investment matrix, domestic capital goods, purchaser price
6.39 Investment matrix, imported capital goods, purchaser price

Presentation tables 6.3 - 6.39

TABLE 6.3
List of 12 industries and products

Industry		Product	
1	Agriculture and forestry	1	Agriculture and forestry products
2	Capture fishery	2	Capture fishery products
3	Mining	3	Minerals
4	Manufacturing	4	Manufactured products
5	Electricity, gas and water	5	Electricity, gas and water
6	Construction	6	Construction products
7	Wholesale and retail trade, hotels and restaurants	7	Wholesale and retail trade, hotel and restaurant services
8	Transportation and communications	8	Transportation and communications services
9	Financial intermediation and business services	9	Business and financial services
10	Owner occupied dwellings	10	Owner occupied dwellings services
11	Personal and social services	11	Personal and social services
12	Public administration	12	Public administration services
13	Imputations	13	Other goods and services[1]/

[1]/ Goods and services are expenditures by foreign tourists in Chile and Chilean tourists abroad.

TABLE 6.4
List of 73 industries and products

Industry code 2003		Product code 2003	
1	Agriculture	1	Agricultural products
2	Fruit farming	2	Fruit
3	Livestock	3	Livestock and livestock products
4	Forestry	4	Forestry products
5	Capture fishery	5	Fish and shellfish
6	Coal extraction	6	Coal
7	Extraction of petroleum	7	Crude petroleum
8	Iron mining	8	Iron
9	Copper mining	9	Copper
10	Other mining	10	Other minerals
11	Meat production	11	Meat
12	Fish manufacturing	12	Sea foods
13	Manufacture of conserves	13	Fruit and vegetable conserves
14	Manufacture of food oil	14	Food oils and fats
15	Manufacture of milk	15	Dairy products
16	Milling	16	Products of milling
17	Manufacture of animal fodder	17	Animal fodder
18	Bakeries	18	Bread, noodles and pasta
19	Sugar	19	Sugar and starches
20	Manufacture of different food products	20	Other food productss
21	Manufacture of alcohol and liquor	21	Alcohol and liquor
22	Manufacture of wine	22	Wine
23	Manufacture of beer	23	Beer
24	Manufacture of non-alcoholic	24	Non-alcoholic beverages
25	Manufacture of tobacco products	25	Tobacco products
26	Manufacture of textile products	26	Textile products
27	Manufacture of wearing apparel	27	Wearing apparel
28	Manufacture of leather and its products	28	Leather and leather products
29	Manufacture of footwear	29	Footwear
30	Production of wood and its products	30	Wood and wood products
31	Manufacture of paper	31	Paper and paper products
32	Printed material and publishing	32	Printed material and recordings
33	Manufacture of fuel	33	Fuel and other oil products
34	Manufacture of basic chemicals	34	Basic chemicals
35	Manufacture of other chemicals	35	Other chemicals
36	Manufacture of rubber products	36	Rubber products
37	Manufacture of plastic products	37	Plastic products
38	Manufacture of glass and its products	38	Glass and glass products
39	Manufacture of other non-metallic mineral products	39	Non-metallic mineral products
40	Basic manufacturing of iron and steel	40	Basic products of iron and steel
41	Basic manufacturing of non-ferrous metals	41	Basic products of non-ferrous metals
42	Manufacture of metallic products	42	Metallic products
43	Manufacture of non-electric machinery and equipment	43	Non-electric machinery and equipment
44	Manufacture of electrical machinery and equipment	44	Electric machinery and equipment
45	Manufacture of transportation equipment	45	Transportation equipment
46	Manufacture of furniture	46	Furniture
47	Other manufacturing industries	47	Other manufactured products
48	Supply of electricity	48	Electricity
49	Supply of gas	49	Gas
50	Supply of water	50	Water
51	Construction	51	Construction
52	Wholesale and retail services	52	Wholesale and retail trade
53	Hotels	53	Hotel services
54	Restaurants	54	Restaurant services
55	Railway transportation	55	Railway transportation services
56	Other passenger land transport	56	Transportation services by road
57	Freight transport by road	57	Freight transport by road
58	Sea and coastal water transport	58	Sea and coastal water transport services
59	Air transportation	59	Air transportation services
60	Industries associated with transportation	60	Services associated with transportation
61	Communications	61	Communication services
62	Financial intermediation	62	Financial services
63	Insurance companies	63	Insurance services
64	Real estate companies	64	Real estate services
65	Business service industry	65	Business services
66	Owner-occupied dwellings	66	Owner-occupied dwellings services
67	Public administration	67	Public administration services
68	Public education	68	Public education services
69	Private education	69	Private education services
70	Public health	70	Public health services
71	Private health	71	Private health services
72	Leisure industries	72	Leisure services
73	Other service industries	73	Other diverse services
		74	Other goods and services

TABLE 6.5
Gross domestic product
Production approach
(millions of 2003 pesos)

Industry	Value added
1	1,842,431
2	627,436
3	4,321,571
4	8,398,990
5	1,461,211
6	3,531,382
7	4,950,883
8	4,711,435
9	7,650,975
10	2,977,723
11	5,911,639
12	2,214,717
Total value added	48,600,393
Imputations	-1,740,067
Import duties	525,815
Non-deductible VAT	3,770,274
GDP	51,156,415

TABLE 6.6
Gross domestic product
Income approach
(millions of 2003 pesos)

Industry	Value added
Wages	21,100,769
Taxes	6,162,796
Gross surplus	23,892,850
GDP	51,156,415

TABLE 6.7
Gross domestic product
Expenditure approach
(millions of 2003 pesos)

Product	Household consumption	NPISH consumption	Government consumption	Gross fixed capital formation	Inventory change	Exports	Imports c.i.f.	GDP
1	1,194,582			112,566	45,741	1,480,201	-286,005	2,547,085
2	138,072				66,033	880,883	-2,052	1,082,936
3	81,747				279,780	6,275,254	-2,003,691	4,633,089
4	14,503,538		39,716	3,516,259	98,893	6,295,582	-10,978,967	13,475,021
5	870,565		25,874			0	-30,860	865,579
6				6,678,177			-140	6,678,037
7	1,656,668		88,365			307,310	-457,203	1,595,140
8	3,583,254					2,248,429	-1,097,329	4,734,354
9	1,430,208		30,531			471,114	-920,256	1,011,597
10	3,674,545							3,674,545
11	4,339,499	491,361	2,859,428			47,308	-39,790	7,697,807
12	42,438		3,102,304			16,534	-51	3,161,224
13	102,724					661,891	-764,615	
Total	31,617,840	491,361	6,146,218	10,307,001	490,447	18,684,506	-16,580,959	51,156,415

TABLE 6.8
Total supply
Purchaser price
(millions of 2003 pesos)

Product	Gross output, basic price	Imports c.i.f.	Import duties	Sales margin	Taxes on goods and services	Value added tax	Total supply purchaser price
1	3,905,880	286,005	6,574	1,364,504		137,804	5,700,766
2	1,321,236	2,052	118	93,638		15,843	1,432,888
3	8,069,509	2,003,691	21,868	35,072		18,344	10,148,484
4	22,142,098	10,978,967	497,125	6,861,259	824,942	2,009,781	43,314,173
5	3,070,738	30,860	130	9,580		172,471	3,283,779
6	7,495,970	140				273,062	7,769,173
7	3,162,126	457,203				218,954	3,838,283
8	10,772,616	1,097,329				237,113	12,107,058
9	13,809,289	920,256				241,693	14,971,238
10	3,674,545						3,674,545
11	8,387,982	39,790				445,209	8,872,980
12	3,184,698	51					3,184,750
13		764,615					764,615
Total	**88,996,689**	**16,580,959**	**525,815**	**8,364,053**	**824,942**	**3,770,274**	**119,062,732**

TABLE 6.9
Total intermediate use
Purchaser price
(millions of 2003 pesos)

Product	Industry													
	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
1	566,603	1,683	98	2,169,602		22,659	79,516	4,829	226	603	18,328	3,530		2,867,676
2	1	27,739		296,505			19,955	1,425			2,276			347,900
3	11,854	62	854,097	2,235,827	216,301	161,096	4,556	12,039	10,588		5,099	186		3,511,704
4	1,038,307	563,616	1,332,890	7,229,901	86,445	2,631,905	1,760,842	2,136,320	873,469	46,348	788,324	371,819		18,860,184
5	31,708	5,107	439,535	263,091	1,162,277	23,138	112,906	42,957	65,435	36,756	101,450	102,981		2,387,340
6	6,394	383	6,286	32,990	12,343	331	98,525	23,107	130,583	584,520	107,604	87,930		1,090,996
7	65,910	13,732	39,032	353,810	2,276	20,761	474,845	416,368	215,437		122,568	61,202		1,785,940
8	90,546	31,878	351,180	935,905	101,287	128,795	1,553,694	2,456,128	350,528	4,330	179,687	91,416		6,275,375
9	238,389	111,880	1,071,102	1,686,842	279,153	740,606	2,187,197	1,154,936	2,748,959	23,461	696,756	360,037	1,740,067	13,039,385
10														
11	10,454	5,941	15,555	64,048	3,885	6,406	66,192	62,584	286,164		443,593	170,562		1,135,384
12	2,378			4,214			15,893	205	13		703	68		23,474
Total	**2,062,545**	**762,020**	**4,109,774**	**15,272,735**	**1,863,966**	**3,735,697**	**6,374,121**	**6,310,897**	**4,681,400**	**696,018**	**2,466,387**	**1,249,731**	**1,740,067**	**51,325,358**

TABLE 6.10
Total final use
Purchaser price
(millions of 2003 pesos)

Product	Intermediate consumption	Final demand							Total use
		Household consumption	NPISH consumption	Government consumption	Gross fixed capital formation	Inventory change	Exports	Total	
1	2,867,676	1,194,582			112,566	45,741	1,480,201	2,833,090	5,700,766
2	347,900	138,072				66,033	880,883	1,084,988	1,432,888
3	3,511,704	81,747				279,780	6,275,254	6,636,781	10,148,484
4	18,860,184	14,503,538		39,716	3,516,259	98,893	6,295,582	24,453,989	43,314,173
5	2,387,340	870,565		25,874			0	896,439	3,283,779
6	1,090,996				6,678,177			6,678,177	7,769,173
7	1,785,940	1,656,668		88,365			307,310	2,052,343	3,838,283
8	6,275,375	3,583,254					2,248,429	5,831,683	12,107,058
9	13,039,385	1,430,208		30,531			471,114	1,931,853	14,971,238
10		3,674,545						3,674,545	3,674,545
11	1,135,384	4,339,499	491,361	2,859,428			47,308	7,737,596	8,872,980
12	23,474	42,438		3,102,304			16,534	3,161,275	3,184,750
13		102,724					661,891	764,615	764,615
Total	**51,325,358**	**31,617,840**	**491,361**	**6,146,218**	**10,307,001**	**490,447**	**18,684,506**	**67,737,374**	**119,062,732**

TABLE 6.11
Added value
(millions of 2003 pesos)

Item	Industry													
	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Intermediate consumption	2,062,545	762,020	4,109,774	15,272,735	1,863,966	3,735,697	6,374,121	6,310,897	4,681,400	696,018	2,466,387	1,249,731	1,740,067	51,325,358
Value added	1,842,431	627,436	4,321,571	8,398,990	1,461,211	3,531,382	4,950,883	4,711,435	7,650,975	2,977,723	5,911,639	2,214,717	-1,740,067	46,860,326
Wages708,992	207,222	812,552	2,534,695	197,988	2,297,597	3,132,886	1,653,204	3,462,533	53,077	4,215,328	1,824,694		21,100,769	
Gross surplus	1,079,647	416,640	3,488,034	4,974,424	1,249,128	1,158,673	1,597,469	3,011,331	4,050,103	2,572,279	1,650,447	384,742	-1,740,067	23,892,850
Taxes on goods and services				824,942										824,942
Other net taxes on production	53,792	3,575	20,985	64,929	14,095	75,112	220,528	46,899	138,338	352,367	45,864	5,281		1,041,765
GO producer price	**3,904,976**	**1,389,457**	**8,431,344**	**23,671,725**	**3,325,178**	**7,267,079**	**11,325,005**	**11,022,331**	**12,332,375**	**3,673,741**	**8,378,026**	**3,464,448**	**0**	**98,185,685**
- Taxes on goods and services				824,942										824,942
GO basic price	**3,904,976**	**1,389,457**	**8,431,344**	**22,846,783**	**3,325,178**	**7,267,079**	**11,325,005**	**11,022,331**	**12,332,375**	**3,673,741**	**8,378,026**	**3,464,448**	**0**	**97,360,743**

TABLE 6.12
Domestic supply
Purchaser price
(millions of 2003 pesos)

Product	Gross output, basic price	Trade margin	Taxes on goods and services	Tax on added value	Domestic supply, purchaser price
1	3,905,880	1,337,874		134,864	5,378,618
2	1,321,236	93,631		15,839	1,430,707
3	8,069,509	33,101		13,715	8,116,325
4	22,142,098	2,730,867	824,942	1,296,405	26,994,313
5	3,070,738	9,579		172,455	3,252,773
6	7,495,970			273,062	7,769,033
7	3,162,126			218,954	3,381,080
8	10,772,616			237,113	11,009,729
9	13,809,289			241,693	14,050,982
10	3,674,545				3,674,545
11	8,387,982			445,209	8,833,191
12	3,184,698				3,184,698
Total	**88,996,689**	**4,205,053**	**824,942**	**3,049,309**	**97,075,993**

TABLE 6.13
Domestic intermediate use
Purchaser price
(millions of 2003 pesos)

Product	Industry													
	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
1	530,611	1,683	98	1,922,874		22,659	77,069	3,529	119	603	18,299	3,530		2,581,073
2		27,738		294,477			19,920	1,425			2,192			345,752
3	11,592	62	839,940	430,970	882	160,330	4,053	11,903	9,854		4,347	186		1,474,119
4	731,392	504,589	811,661	3,953,746	32,304	1,952,310	1,064,150	1,370,996	549,286	42,564	466,067	229,971		11,709,036
5	31,708	5,107	426,457	263,091	1,144,630	23,138	112,888	42,840	65,434	36,756	101,450	102,836		2,356,334
6	6,394	383	6,286	32,990	12,343	331	98,525	23,107	130,583	584,520	107,604	87,790		1,090,856
7	65,855	7,141	25,730	125,755	2,276	20,760	311,341	402,428	197,217		110,973	59,261		1,328,737
8	90,546	31,878	351,180	935,905	101,287	128,795	1,551,162	1,386,067	350,528	4,330	179,687	81,478		5,192,843
9	237,535	111,202	1,011,200	1,665,045	259,369	738,393	2,157,648	1,089,564	2,053,325	23,461	695,044	337,276	1,740,067	12,119,129
10														
11	10,454	5,941	15,555	64,048	3,885	6,406	66,192	62,584	286,164		407,270	167,095		1,095,594
12	2,378			4,214			15,893	205	13		703	17		23,423
Total	**1,718,465**	**695,724**	**3,488,106**	**9,693,114**	**1,556,976**	**3,053,121**	**5,478,842**	**4,394,649**	**3,642,523**	**692,234**	**2,093,636**	**1,069,440**	**1,740,067**	**39,316,896**

TABLE 6.14
Domestic final use
Purchaser price
(millions of 2003 pesos)

Product	Intermediate consumption	Final demand							Total use
		Household consumption	NPISH consumption	Government consumption	Gross fixed capital formation	Inventory change	Exports	Total	
1	2,581,073	1,167,961			109,784	39,626	1,480,173	2,797,544	5,378,618
2	345,752	138,039				66,033	880,883	1,084,955	1,430,707
3	1,474,119	52,237				314,777	6,275,192	6,642,207	8,116,325
4	11,709,036	9,053,291		39,716	393,956	74,986	5,723,327	15,285,276	26,994,313
5	2,356,334	870,565		25,874			0	896,439	3,252,773
6	1,090,856				6,678,177			6,678,177	7,769,033
7	1,328,737	1,656,668		88,365			307,310	2,052,343	3,381,080
8	5,192,843	3,568,457					2,248,429	5,816,886	11,009,729
9	12,119,129	1,430,208		30,531			471,114	1,931,853	14,050,982
10		3,674,545						3,674,545	3,674,545
11	1,095,594	4,339,499	491,361	2,859,428			47,308	7,737,596	8,833,191
12	23,423	42,438		3,102,304			16,534	3,161,275	3,184,698
13		-661,891					661,891		
Total	**39,316,896**	**25,332,017**	**491,361**	**6,146,218**	**7,181,917**	**495,423**	**18,112,162**	**57,759,097**	**97,075,993**

TABLE 6.15
Imported supply
Purchaser price
(millions of 2003 pesos)

Product	Imports prices c.i.f.	Import duties	Sales margin	Value added tax	Imported supply, purchaser prise
1	286,005	6,574	26,630	2,940	322,149
2	2,052	118	7	4	2,181
3	2,003,691	21,868	1,971	4,629	2,032,159
4	10,978,967	497,125	4,130,391	713,377	16,319,860
5	30,860	130	1	16	31,006
6	140				140
7	457,203				457,203
8	1,097,329				1,097,329
9	920,256				920,256
10					
11	39,790				39,790
12	51				51
13	764,615				764,615
Total	16,580,959	525,815	4,159,000	720,965	21,986,739

TABLE 6.16
Imported intermediate use
Purchaser prise
(millions of 2003 pesos)

Product	Industry												
	1	2	3	4	5	6	7	8	9	10	11	12	Total
1	35,992			246,728		0	2,447	1,300	107		29		286,603
2	1	0		2,028			35				84		2,148
3	262		14,157	1,804,857	215,419	766	502	135	735		752		2,037,585
4	306,915	59,027	521,228	3,276,155	54,141	679,595	696,692	765,323	324,183	3,784	322,257	141,848	7,151,148
5			13,079	0	17,647		18	117	1			145	31,006
6												140	140
7	56	6,591	13,302	228,054		1	163,504	13,939	18,220		11,595	1,941	457,203
8							2,532	1,070,062				9,938	1,082,532
9	854	678	59,902	21,797	19,784	2,213	29,550	65,372	695,633		1,713	22,760	920,256
10													
11											36,323	3,467	39,790
12												51	51
Total	344,080	66,296	621,667	5,579,621	306,990	682,575	895,280	1,916,248	1,038,877	3,784	372,752	180,291	12,008,462

TABLE 6.17
Imported final use
Purchaser price
(millions of 2003 pesos)

Product	Intermediate consumption	Final demand					Total use
		Household consumption	Gross fixed capital formation	Inventory change	Exports	Total	
1	286,603	26,621	2,782	6,115	28	35,545	322,149
2	2,148	34		0		34	2,181
3	2,037,585	29,510		-34,997	62	-5,426	2,032,159
4	7,151,148	5,450,248	3,122,303	23,907	572,255	9,168,712	16,319,860
5	31,006						31,006
6	140						140
7	457,203						457,203
8	1,082,532	14,797				14,797	1,097,329
9	920,256						920,256
10							
11	39,790						39,790
12	51						51
13		764,615				764,615	764,615
Total	12,008,462	6,285,824	3,125,085	-4,975	572,344	9,978,277	21,986,739

TABLE 6.18
Total supply
Producer price
(millions of 2003 pesos))

Product	Gross output, basic price	Import, prices c.i.f.	Import duties	Taxes on goods and services	Value added tax	Total supply, producer price
1	3,905,880	286,005	6,574		137,804	4,336,263
2	1,321,236	2,052	118		15,843	1,339,250
3	8,069,509	2,003,691	21,868		18,344	10,113,412
4	22,142,098	10,978,967	497,125	824,942	2,009,781	36,452,914
5	3,070,738	30,860	130		172,471	3,274,198
6	7,495,970	140			273,062	7,769,173
7	11,526,180	457,203			218,954	12,202,336
8	10,772,616	1,097,329			237,113	12,107,058
9	13,809,289	920,256			241,693	14,971,238
10	3,674,545					3,674,545
11	8,387,982	39,790			445,209	8,872,980
12	3,184,698	51				3,184,750
13		764,615				764,615
Total	97,360,742	16,580,959	525,815	824,942	3,770,274	119,062,732

TABLE 6.19
Total intermediate use
Producer price
(millions of 2003 pesos)

Product	Industry													
	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
1	510,077	1,683	98	2,147,875		22,659	35,787	4,829	226	603	18,328	3,530		2,745,694
2	1	27,739		295,667			10,985	787			1,383			336,562
3	11,750	50	853,633	2,227,715	214,900	160,980	4,473	11,936	10,447		5,012	166		3,501,062
4	870,974	525,902	1,132,916	6,205,590	77,180	2,294,641	1,646,137	1,851,521	738,313	37,979	633,958	350,357		16,365,468
5	31,708	5,107	430,380	263,091	1,162,277	23,138	112,905	42,957	65,435	36,756	101,450	102,981		2,378,184
6	6,394	383	6,286	32,990	12,343	331	98,525	23,107	130,583	584,520	107,604	87,930		1,090,996
7	289,874	51,458	248,624	1,408,797	12,942	358,141	642,332	701,907	350,734	8,369	277,914	82,683		4,433,775
8	90,546	31,878	351,180	935,905	101,287	128,795	1,553,694	2,456,128	350,528	4,330	179,687	91,416		6,275,375
9	238,389	111,880	1,071,102	1,686,842	279,153	740,606	2,187,197	1,154,936	2,748,959	23,461	696,756	360,037	1,740,067	13,039,385
10														
11	10,454	5,941	15,555	64,048	3,885	6,406	66,192	62,584	286,164		443,593	170,562		1,135,384
12	2,378			4,214			15,893	205	13		703	68		23,474
Total	2,062,545	762,020	4,109,774	15,272,735	1,863,966	3,735,697	6,374,121	6,310,897	4,681,400	696,018	2,466,387	1,249,731	1,740,067	51,325,358

TABLE 6.20
Total final use
Producer price
(millions of 2003 pesos)

Product	Intermediate consumption	Final demand							Total use
		Household consumption	NPISH consumption	Government consumption	Gross fixed capital formation	Inventory change	Exports	Total	
1	2,745,694	636,816			112,203	45,642	795,908	1,590,569	4,336,263
2	336,562	86,797				66,033	849,857	1,002,688	1,339,250
3	3,501,062	79,893				281,212	6,251,246	6,612,350	10,113,412
4	16,365,468	11,093,166		39,716	2,684,823	85,712	6,184,030	20,087,446	36,452,914
5	2,378,184	870,140		25,874			0	896,015	3,274,198
6	1,090,996				6,678,177			6,678,177	7,769,173
7	4,433,775	5,678,361		88,365	831,799	11,848	1,158,188	7,768,561	12,202,336
8	6,275,375	3,583,254					2,248,429	5,831,683	12,107,058
9	13,039,385	1,430,208		30,531			471,114	1,931,853	14,971,238
10		3,674,545						3,674,545	3,674,545
11	1,135,384	4,339,499	491,361	2,859,428			47,308	7,737,596	8,872,980
12	23,474	42,438		3,102,304			16,534	3,161,275	3,184,750
13		102,724					661,891	764,615	764,615
Total	51,325,358	31,617,840	491,361	6,146,218	10,307,001	490,447	18,684,506	67,737,374	119,062,732

TABLE 6.21
Domestic supply
Producer price
(millions of 2003 pesos)

Product	Gross output, basic price	Taxes on goods and services	Value added tax	National supply, producer price
1	3,905,880		134,864	4,040,744
2	1,321,236		15,839	1,337,075
3	8,069,509		13,715	8,083,224
4	22,142,098	824,942	1,296,405	24,263,445
5	3,070,738		172,455	3,243,193
6	7,495,970		273,062	7,769,033
7	11,526,180		218,954	11,745,133
8	10,772,616		237,113	11,009,729
9	13,809,289		241,693	14,050,982
10	3,674,545			3,674,545
11	8,387,982		445,209	8,833,191
12	3,184,698			3,184,698
Total	97,360,742	824,942	3,049,309	101,234,993

TABLE 6.22
Domestic intermediate use
Producer price
(millions of 2003 pesos)

Product	Industry													
	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
1	476,366	1,683	98	1,922,874		22,659	33,581	3,529	119	603	18,299	3,530		2,483,340
2		27,738		293,642			10,952	787			1,302			334,421
3	11,516	50	839,485	425,277	393	160,215	3,970	11,801	9,727		4,260	166		1,466,859
4	679,599	485,471	745,251	3,563,623	27,668	1,796,339	978,779	1,189,528	490,250	35,767	412,714	212,760		10,617,750
5	31,708	5,107	417,301	263,091	1,144,630	23,138	112,888	42,840	65,434	36,756	101,450	102,836		2,347,178
6	6,394	383	6,286	32,990	12,343	331	98,525	23,107	130,583	584,520	107,604	87,790		1,090,856
7	289,818	44,867	235,322	1,180,743	12,942	358,140	478,828	687,968	332,514	8,369	266,319	80,742		3,976,572
8	90,546	31,878	351,180	935,905	101,287	128,795	1,551,162	1,386,067	350,528	4,330	179,687	81,478		5,192,843
9	237,535	111,202	1,011,200	1,665,045	259,369	738,393	2,157,648	1,089,564	2,053,325	23,461	695,044	337,276	1,740,067	12,119,129
10														
11	10,454	5,941	15,555	64,048	3,885	6,406	66,192	62,584	286,164		407,270	167,095		1,095,594
12	2,378			4,214			15,893	205	13		703	17		23,423
Total	1,836,314	714,320	3,621,678	10,351,451	1,562,517	3,234,415	5,508,418	4,497,980	3,718,658	693,806	2,194,652	1,073,690	1,740,067	40,747,966

TABLE 6.23
Domestic final use
Producer price
(millions of 2003 pesos)

Product	Intermediate consumption	Final demand							Total use
		Household consumption	NPISH consumption	Government consumption	Gross fixed capital formation	Inventory change	Exports	Total	
1	2,483,340	612,111			109,784	39,626	795,884	1,557,404	4,040,744
2	334,421	86,764				66,033	849,857	1,002,655	1,337,075
3	1,466,859	50,383				314,777	6,251,205	6,616,365	8,083,224
4	10,617,750	7,483,801		39,716	357,019	54,503	5,710,656	13,645,695	24,263,445
5	2,347,178	870,140		25,874			0	896,015	3,243,193
6	1,090,856				6,678,177			6,678,177	7,769,033
7	3,976,572	5,678,361		88,365	831,799	11,848	1,158,188	7,768,561	11,745,133
8	5,192,843	3,568,457					2,248,429	5,816,886	11,009,729
9	12,119,129	1,430,208		30,531			471,114	1,931,853	14,050,982
10		3,674,545						3,674,545	3,674,545
11	1,095,594	4,339,499	491,361	2,859,428			47,308	7,737,596	8,833,191
12	23,423	42,438		3,102,304			16,534	3,161,275	3,184,698
13		-661,891					661,891		
Total	40,747,966	27,174,816	491,361	6,146,218	7,976,779	486,787	18,211,067	60,487,028	101,234,993

TABLE 6.24
Imported supply
Producer price
(millions of 2003 pesos)

Product	Import prices c.i.f.	Import duties	Value added tax	Total supply, producer price
1	286,005	6,574	2,940	295,519
2	2,052	118	4	2,174
3	2,003,691	21,868	4,629	2,030,188
4	10,978,967	497,125	713,377	12,189,469
5	30,860	130	16	31,005
6	140			140
7	457,203			457,203
8	1,097,329			1,097,329
9	920,256			920,256
10				
11	39,790			39,790
12	51			51
13	764,615			764,615
Total	**16,580,959**	**525,815**	**720,965**	**17,827,739**

TABLE 6.25
Imported intermediate use
Producer price
(millions of 2003 pesos)

Product	Industry												
	1	2	3	4	5	6	7	8	9	10	11	12	Total
1	33,711			225,001		0	2,206	1,300	107		29		262,354
2	1	0		2,026			34				81		2,141
3	234		14,148	1,802,438	214,507	766	502	135	720		752		2,034,203
4	191,375	40,431	387,665	2,641,967	49,511	498,302	667,358	661,993	248,062	2,212	221,244	137,598	5,747,718
5			13,079	0	17,647		17	117	1			145	31,005
6												140	140
7	56	6,591	13,302	228,054		1	163,504	13,939	18,220		11,595	1,941	457,203
8							2,532	1,070,062				9,938	1,082,532
9	854	678	59,902	21,797	19,784	2,213	29,550	65,372	695,633		1,713	22,760	920,256
10													
11											36,323	3,467	39,790
12												51	51
Total	**226,231**	**47,701**	**488,096**	**4,921,284**	**301,449**	**501,282**	**865,703**	**1,812,917**	**962,743**	**2,212**	**271,735**	**176,041**	**10,577,393**

TABLE 6.26
Imported final use
Producer price
(millions of 2003 pesos)

Product	Intermediate consumption	Final demand					Total use
		Household consumption	Gross fixed capital formation	Inventory change	Exports	Total	
1	262,354	24,705	2,419	6,016	25	33,165	295,519
2	2,141	34		0		34	2,174
3	2,034,203	29,510		-33,565	41	-4,015	2,030,188
4	5,747,718	3,609,364	2,327,804	31,209	473,374	6,441,751	12,189,469
5	31,005						31,005
6	140						140
7	457,203						457,203
8	1,082,532	14,797				14,797	1,097,329
9	920,256						920,256
10							
11	39,790						39,790
12	51						51
13		764,615				764,615	764,615
Total	**10,577,393**	**4,443,025**	**2,330,223**	**3,660**	**473,439**	**7,250,346**	**17,827,739**

TABLE 6.27
Total supply
Basic price
(millions of 2003 pesos))

Product	Gross output, basic price	Imports prices c.i.f.	Imports duties	Total supply basic price
1	3,905,880	286,005	6,574	4,198,459
2	1,321,236	2,052	118	1,323,407
3	8,069,509	2,003,691	21,868	10,095,068
4	22,142,098	10,978,967	497,125	33,618,190
5	3,070,738	30,860	130	3,101,727
6	7,495,970	140		7,496,111
7	11,526,180	457,203		11,983,383
8	10,772,616	1,097,329		11,869,945
9	13,809,289	920,256		14,729,545
10	3,674,545			3,674,545
11	8,387,982	39,790		8,427,771
12	3,184,698	51		3,184,750
13		764,615		764,615
Total	**97,360,742**	**16,580,959**	**525,815**	**114,467,516**

TABLE 6.28
Total intermediate use
Basic price
(millions of 2003 pesos)

Product	Industry													
	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
1	510,077	1,683	98	2,147,875		22,606	35,787	4,820	219	603	16,541	2,985		2,743,293
2	1	27,739		295,667			10,985	779			1,136			336,307
3	11,750	50	853,633	2,227,715	214,900	157,334	4,473	10,200	10,361		4,595	138		3,495,148
4	834,702	517,615	1,098,096	6,176,745	76,231	2,226,744	1,624,688	1,524,013	701,216	37,249	566,649	310,329		15,694,277
5	31,708	5,107	430,380	263,091	1,162,277	23,038	112,905	41,070	60,450	36,756	89,477	87,110		2,343,370
6	6,394	383	6,286	32,990	12,343	331	98,525	22,932	113,736	584,520	93,561	74,381		1,046,382
7	289,874	51,458	248,624	1,408,797	12,942	358,141	642,332	692,764	343,782	8,369	266,646	73,537		4,397,267
8	90,546	31,878	351,180	935,905	101,287	127,996	1,553,694	2,442,824	334,634	4,330	169,441	82,418		6,226,133
9	238,389	111,880	1,071,102	1,686,842	279,153	733,547	2,187,197	1,140,756	2,651,467	23,461	673,029	332,318	1,740,067	12,869,209
10														
11	10,454	5,941	15,555	64,048	3,885	6,406	66,192	62,554	285,175		442,120	152,147		1,114,477
12	2,378			4,214			15,893	205	13		703	68		23,474
Total	**2,026,273**	**753,734**	**4,074,953**	**15,243,889**	**1,863,018**	**3,656,143**	**6,352,672**	**5,942,917**	**4,501,053**	**695,288**	**2,323,900**	**1,115,431**	**1,740,067**	**50,289,337**

TABLE 6.29
Total final use
Basic price
(millions of 2003 pesos)

Product	Intermediate consumption	Final demand							Total use
		Household consumption	NPISH consumption	Government consumption	Gross fixed capital formation	Inventory change	Exports	Total	
1	2,743,293	501,416			112,199	45,642	795,908	1,455,165	4,198,459
2	336,307	71,209				66,033	849,857	987,100	1,323,407
3	3,495,148	67,462				281,212	6,251,246	6,599,920	10,095,068
4	15,694,277	8,999,333		33,586	2,639,313	67,651	6,184,030	17,923,914	33,618,190
5	2,343,370	736,477		21,881			0	758,358	3,101,727
6	1,046,382				6,449,728			6,449,728	7,496,111
7	4,397,267	5,509,553		74,727	831,799	11,848	1,158,188	7,586,116	11,983,383
8	6,226,133	3,395,383					2,248,429	5,643,812	11,869,945
9	12,869,209	1,359,172		30,050			471,114	1,860,336	14,729,545
10		3,674,545						3,674,545	3,674,545
11	1,114,477	3,915,233	491,361	2,859,392			47,308	7,313,294	8,427,771
12	23,474	42,438		3,102,304			16,534	3,161,275	3,184,750
13		102,724					661,891	764,615	764,615
Total	**50,289,337**	**28,374,945**	**491,361**	**6,121,940**	**10,033,040**	**472,386**	**18,684,506**	**64,178,179**	**114,467,516**

TABLE 6.30
Domestic supply
Basic price
(millions of 2003 pesos)

Product	Gross output, basic price
1	3,905,880
2	1,321,236
3	8,069,509
4	22,142,098
5	3,070,738
6	7,495,970
7	11,526,180
8	10,772,616
9	13,809,289
10	3,674,545
11	8,387,982
12	3,184,698
Total	97,360,742

TABLE 6.31
Domestic intermediate use
Basic price
(millions of 2003 pesos)

Product	Industry													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	476,366	1,683	98	1,922,874		22,606	33,581	3,527	112	603	16,515	2,985		2,480,950
2		27,738		293,642			10,952	779			1,056			334,166
3	11,516	50	839,485	425,277	393	156,578	3,970	10,065	9,652		3,897	138		1,461,020
4	643,327	477,184	710,431	3,534,778	26,720	1,741,837	957,330	894,148	455,749	35,038	356,537	172,731		10,005,809
5	31,708	5,107	417,301	263,091	1,144,630	23,038	112,888	40,970	60,450	36,756	89,477	86,965		2,312,380
6	6,394	383	6,286	32,990	12,343	331	98,525	22,932	113,736	584,520	93,561	74,241		1,046,242
7	289,818	44,867	235,322	1,180,743	12,942	358,140	478,828	678,825	325,562	8,369	255,051	71,596		3,940,064
8	90,546	31,878	351,180	935,905	101,287	127,996	1,551,162	1,372,762	334,634	4,330	169,441	72,480		5,143,601
9	237,535	111,202	1,011,200	1,665,045	259,369	731,334	2,157,648	1,075,384	1,955,833	23,461	671,317	309,557	1,740,067	11,948,953
10														
11	10,454	5,941	15,555	64,048	3,885	6,406	66,192	62,554	285,175		405,797	148,681		1,074,688
12	2,378			4,214			15,893	205	13		703	17		23,423
Total	1,800,042	706,033	3,586,858	10,322,605	1,561,569	3,168,265	5,486,969	4,162,151	3,540,918	693,077	2,063,353	939,391	1,740,067	39,771,296

TABLE 6.32
Domestic final use
Basic price
(millions of 2003 pesos)

Product	Intermediate consumption	Final demand							Total use
		Household consumption	NPISH consumption	Government consumption	Gross fixed capital formation	Inventory change	Exports	Totsl	
1	2,480,950	479,637			109,784	39,626	795,884	1,424,930	3,905,880
2	334,166	71,179				66,033	849,857	987,070	1,321,236
3	1,461,020	42,507				314,777	6,251,205	6,608,489	8,069,509
4	10,005,809	6,002,270		33,586	349,836	39,940	5,710,656	12,136,289	22,142,098
5	2,312,380	736,477		21,881			0	758,358	3,070,738
6	1,046,242				6,449,728			6,449,728	7,495,970
7	3,940,064	5,509,553		74,727	831,799	11,848	1,158,188	7,586,116	11,526,180
8	5,143,601	3,380,586					2,248,429	5,629,015	10,772,616
9	11,948,953	1,359,172		30,050			471,114	1,860,336	13,809,289
10		3,674,545						3,674,545	3,674,545
11	1,074,688	3,915,233	491,361	2,859,392			47,308	7,313,294	8,387,982
12	23,423	42,438		3,102,304			16,534	3,161,275	3,184,698
13		-661,891					661,891		
Total	39,771,296	24,551,705	491,361	6,121,940	7,741,148	472,225	18,211,067	57,589,446	97,360,742

TABLE 6.33
Imported supply
Basic price
(millions of 2003 pesos)

Product	Imports prices c.i.f.	Import duties	Imported supply
1	286,005	6,574	292,579
2	2,052	118	2,171
3	2,003,691	21,868	2,025,559
4	10,978,967	497,125	11,476,092
5	30,860	130	30,989
6	140		140
7	457,203		457,203
8	1,097,329		1,097,329
9	920,256		920,256
10			
11	39,790		39,790
12	51		51
13	764,615		764,615
Total	**16,580,959**	**525,815**	**17,106,774**

TABLE 6.34
Imported intermediate use
Basic price
(millions of 2003 pesos)

Product	Industry												
	1	2	3	4	5	6	7	8	9	10	11	12	Total
1	33,711			225,001		0	2,206	1,293	107		26		262,344
2	1	0		2,026			34				81		2,141
3	234		14,148	1,802,438	214,507	757	502	135	708		698		2,034,128
4	191,375	40,431	387,665	2,641,967	49,511	484,906	667,358	629,865	245,466	2,212	210,112	137,598	5,688,467
5			13,079	0	17,647		17	101	1			145	30,989
6												140	140
7	56	6,591	13,302	228,054		1	163,504	13,939	18,220		11,595	1,941	457,203
8							2,532	1,070,062				9,938	1,082,532
9	854	678	59,902	21,797	19,784	2,213	29,550	65,372	695,633		1,713	22,760	920,256
10													
11											36,323	3,467	39,790
12												51	51
Total	**226,231**	**47,701**	**488,096**	**4,921,284**	**301,449**	**487,878**	**865,703**	**1,780,766**	**960,135**	**2,212**	**260,547**	**176,041**	**10,518,041**

TABLE 6.35
Imported final use
Basic price
(millions of 2003 pesos)

Product	Intermediate consumption	Final demand					Total use
		Household consumption	Gross fixed capital formation	Inventory change	Exports	Total	
1	262,344	21,779	2,415	6,016	25	30,235	292,579
2	2,141	30		0		30	2,171
3	2,034,128	24,955		-33,565	41	-8,569	2,025,559
4	5,688,467	2,997,063	2,289,477	27,711	473,374	5,787,625	11,476,092
5	30,989						30,989
6	140						140
7	457,203						457,203
8	1,082,532	14,797				14,797	1,097,329
9	920,256						920,256
10							
11	39,790						39,790
12	51						51
13		764,615				764,615	764,615
Total	**10,518,041**	**3,823,240**	**2,291,892**	**162**	**473,439**	**6,588,733**	**17,106,774**

TABLE 6.36
Make matrix
Basic price
(millions of 2003 pesos)

Product	Industry												
	1	2	3	4	5	6	7	8	9	10	11	12	Total
1	3,904,976										904		3,905,880
2		1,319,144		2,093									1,321,236
3			7,939,135	18,276	112,098								8,069,509
4		70,051	380,116	21,581,311	669		82,029	7,642	13,352		3,661	3,266	22,142,098
5			565	52,238	3,015,872			2,063					3,070,738
6				121,038	77,267	7,267,079		30,587					7,495,970
7		2	66,728	753,167	16,141		10,537,063	45,572	79,397		27,830	279	11,526,180
8		260		18,275	440		38,252	10,650,382			898	64,110	10,772,616
9			44,801	299,704	92,220		654,807	286,050	12,198,138		155,089	78,479	13,809,289
10										3,673,741		804	3,674,545
11				680	10,471		12,853	35	41,487		8,184,208	138,248	8,387,982
12											5,437	3,179,262	3,184,698
Total	**3,904,976**	**1,389,457**	**8,431,344**	**22,846,782**	**3,325,178**	**7,267,079**	**11,325,005**	**11,022,331**	**12,332,375**	**3,673,741**	**8,378,026**	**3,464,448**	**97,360,742**
Of which:													
Market production	3,904,976	1,389,457	8,431,344	22,846,782	3,325,178	7,267,079	11,325,005	11,022,331	12,332,375	558,409	3,138,336	285,186	85,826,458
Own-use production										3,115,332	497,219		3,612,551
Non-market production											4,742,471	3,179,262	7,921,733
Total	**3,904,976**	**1,389,457**	**8,431,344**	**22,846,782**	**3,325,178**	**7,267,079**	**11,325,005**	**11,022,331**	**12,332,375**	**3,673,741**	**8,378,026**	**3,464,448**	**97,360,742**

TABLE 6.37
Investment matrix
Total capital goods, purchaser price
(millions of 2003 pesos)

Product	Industry												Gross fixed capital formation	Inventory change	Gross capital formation
	1	2	3	4	5	6	7	8	9	10	11	12			
1	112,343										223		112,566	45,741	158,306
2														66,033	66,033
3														279,780	279,780
4	123,368	78,740	714,130	857,681	257,731	16,204	410,379	484,262	314,427		197,641	61,696	3,516,259	98,893	3,615,152
5															
6	116,054	8,207	1,008,893	492,246	512,485	18,399	169,380	786,238	376,965	2,030,298	312,337	846,676	6,678,177		6,678,177
7															
8															
9															
10															
11															
12															
Total	**351,765**	**86,947**	**1,723,024**	**1,349,927**	**770,216**	**34,602**	**579,759**	**1,270,499**	**691,392**	**2,030,298**	**510,200**	**908,372**	**10,307,001**	**490,447**	**10,797,449**

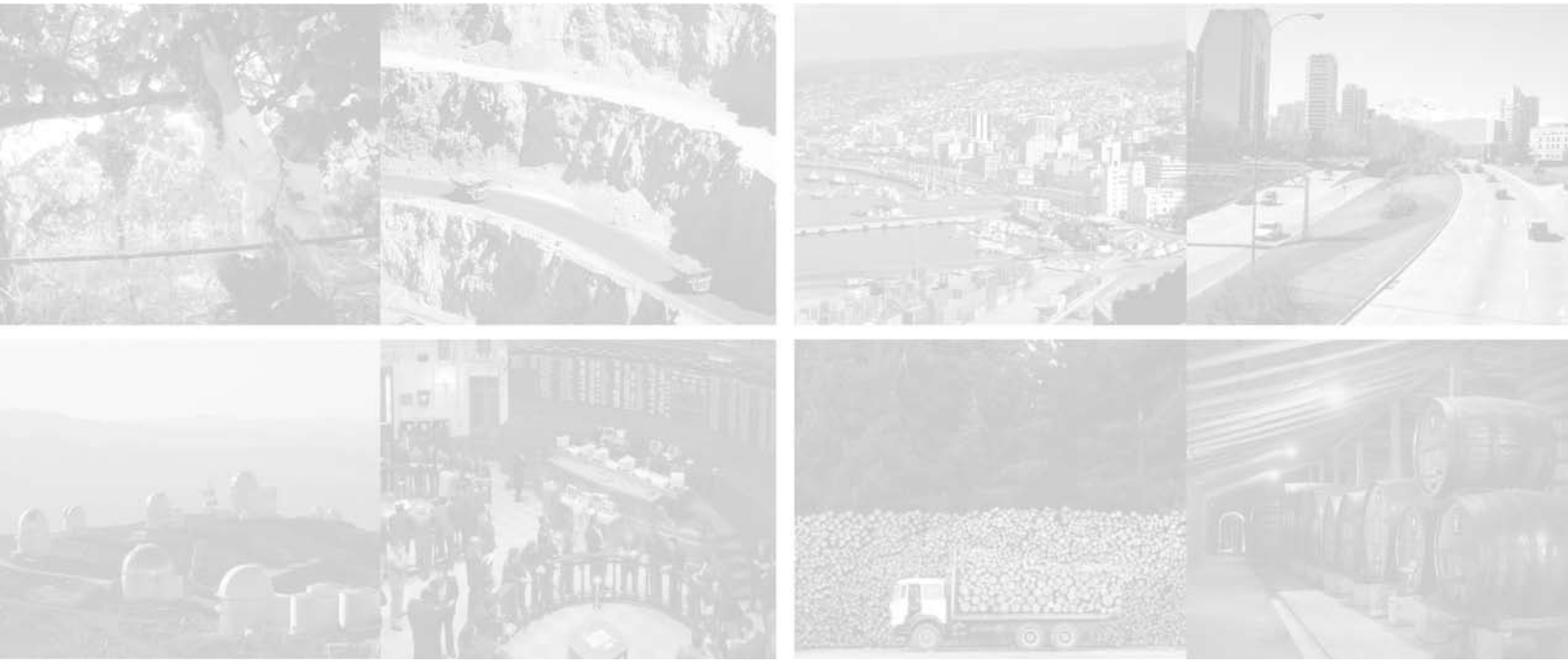
TABLE 6.38
Investment matrix
Domestic capital goods, purchaser price
(millions of 2003 pesos)

Product	Industry												Gross fixed capital formation	Inventory change	Gross capital formation
	1	2	3	4	5	6	7	8	9	10	11	12			
1	109,784												109,784	39,626	149,410
2														66,033	66,033
3														314,777	314,777
4	26,188	10,812	77,875	70,243	28,010	406	59,056	44,042	33,581		20,705	23,038	393,956	74,986	468,942
5															
6	116,054	8,207	1,008,893	492,246	512,485	18,399	169,380	786,238	376,965	2,030,298	312,337	846,676	6,678,177		6,678,177
7															
8															
9															
10															
11															
12															
Total	252,026	19,019	1,086,768	562,489	540,495	18,804	228,436	830,279	410,546	2,030,298	333,042	869,714	7,181,917	495,423	7,677,339

TABLE 6.39
Investment matrix
Imported capital goods, purchaser price
(millions of 2003 pesos)

Product	Industry												Gross fixed capital formation	Inventory change	Gross capital formation
	1	2	3	4	5	6	7	8	9	10	11	12			
1	2,559										223		2,782	6,115	8,897
2														0	0
3														-34,997	-34,997
4	97,180	67,928	636,255	787,438	229,721	15,798	351,323	440,220	280,846		176,936	38,658	3,122,303	23,907	3,146,210
5															
6															
7															
8															
9															
10															
11															
12															
Total	99,739	67,928	636,255	787,438	229,721	15,798	351,323	440,220	280,846		177,158	38,658	3,125,085	-4,975	3,120,109

Sources



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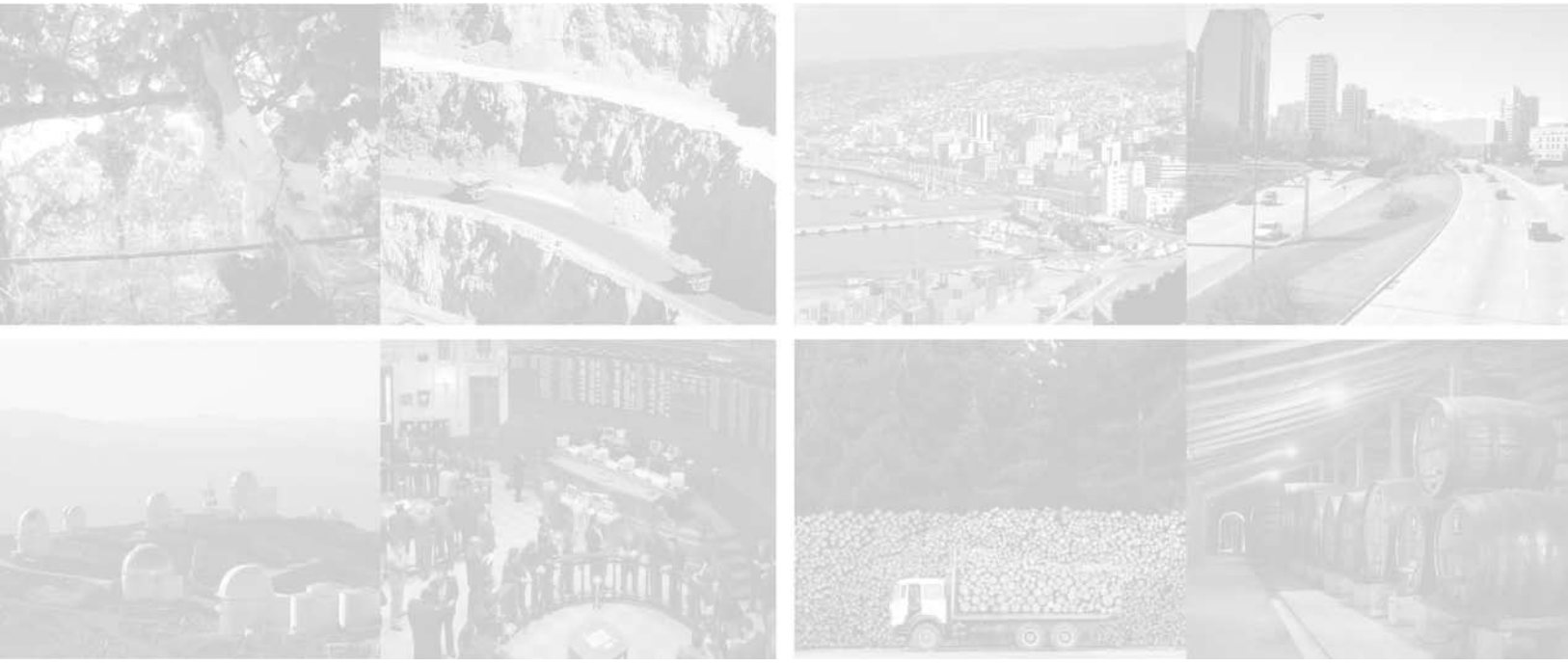

Abbreviations

AEc	Annual estimated compilation 2003 base year 1996
AFP	Administradora de Fondos de Pensiones (pension fund managers)
AGN	Asociación de Distribuidores de Gas Natural (national gas distributors' association)
Agrecop	Asociación Gremial de Correos Privados (association of private couriers)
AV	Added value
Bc	Benchmark compilation. 2003 base year 2003
BEA	Bureau of Economic Analysis
BP	Basic price
CAE	Clasificador de Actividad Económica (Chilean system for classifying industries)
Casén	Encuesta de Caracterización Socioeconómica (socio-economic survey)
CBC	Corporación de Desarrollo Tecnológico y Bienes de Capital
CCAF	Cajas de Compensación y Asignación Familiar (financial agency responsible for family allowances and other social service payments)
CCF	Consumo de capital fijo (fixed capital consumption)
Cchén	Comisión Chilena de Energía Nuclear (Chilean nuclear energy commission)
CCP	Clasificador Central de Productos (Chilean system for classifying products)
CDEC-SIC	Centro de Despacho Económico de Carga. Sistema Interconectado Central (central electric power grid)
CDEC-SING	Centro de Despacho Económico de Carga. Sistema Interconectado del Norte Grande (northern electric power grid)
CGR	Contraloría General de la República (national comptroller's office)
CI	Consumo intermedio (intermediate consumption)
c.i.f.	Cost, insurance and freight

Cirén	Centro de Investigación de Recursos Naturales (natural resource research center)
CMP	Compañía Minera del Pacífico S.A.
CNA	Censo Nacional Agropecuario (national farming census)
CNE	Comisión Nacional de Energía (national energy commission)
Cochilco	Comisión Chilena del Cobre (Chilean copper commission)
Codelco	Corporación Nacional del Cobre (publicly owned copper corporation)
Conaf	Corporación Nacional Forestal (national forestry service)
Corfo	Corporación de Fomento de la Producción (national development corporation)
CPI	Consumer Price Index
CUP	Clasificador Único de Productos (Chilean classification of products)
DGAC	Dirección General de Aeronáutica Civil (civil aviation board)
Directemar	Dirección General del Territorio Marítimo y Marina Mercante (merchant marine agency)
ECOM	Encuesta de Comercio (wholesale and retail survey)
EGW	Electricity, gas and water sector
Enami	Empresa Nacional de Minería (publicly owned national mining company)
ENAP	Empresa Nacional del Petróleo (publicly owned national petroleum company)
ENE	Encuesta Nacional del Empleo (national employment survey)
ENIA	Encuesta Nacional Industrial Anual (annual manufacturing survey)
EPF	Encuesta de Presupuestos Familiares (family budget survey)
Esaat	Encuesta de Servicios de Alimentación y Alojamiento Turístico (tourism survey)
Eserv	Encuesta de Servicios (services survey)
Eurostat	Statistical Office of the European Communities
EW	Engineering works
FECU	Ficha Estadística Codificada Uniforme
FISIM	Financial intermediation services indirectly measured

f.o.b.	Free on board
Fonasa	Fondo Nacional de Salud (national health fund)
Formulario 1887	Declaración de remuneraciones (wage statement)
Formulario 22	Declaración de renta (income statement)
Formulario 29	Declaración de IVA (VAT statement)
GAV	Gross added value
GDP	Gross Domestic Product
GFCF	gross fixed capital formation
GO	Gross output
grt	Gross registered tonnage
IARIW	International Association for Research in Income and Wealth
IFOP	Instituto de Fomento Pesquero (fisheries institute)
Imacec	Monthly Economic Activity Indicador (Indicador Mensual de Actividad Económica)
IMF	International Monetary Fund
Inacap	Instituto Nacional de Capacitación Profesional
INE	National Statistics Bureau (Instituto Nacional de Estadísticas)
Infor	Instituto Forestal de Chile (forestry institute)
INP	Instituto de Normalización Provisional (government pension agency)
IOM	Input-output matrix
Isapre	Institución de salud provisional (private health insurance company)
ISIC rev. 3	International Standard Industrial Classification, Revision 3
JAC	Junta de Aeronáutica Civil (civil aviation board)
Junji	Junta Nacional de Jardines Infantiles (child care board)
LAT	Ley de Accidentes del Trabajo (law governing accidents on the job)
MCMC	Matriz de conciliación de márgenes de comercio (sales margin reconciliation matrix)

ME	Microbusinesses
Mideplán	Ministerio de Planificación (planning ministry)
Mineduc	Ministerio de Educación (education ministry)
Minsal	Ministerio de Salud (health ministry)
MOP	Ministerio de Obras Públicas (public works ministry)
MTT	Ministerio de Transporte y Telecomunicaciones (transportation and telecommunications ministry)
Odepa	Oficina de Estudios y Políticas Agrarias (office for agricultural studies and policies)
OECD	Organisation for Economic Co-operation and Development
Ondac	Organización Nacional de Asesorías en Construcción (association of construction consultants)
ONS	Office for National Statistics, United Kingdom
PNP	Private non-profit institutions PP Producer Price
PSU	Prueba de Selección Universitaria (university entrance examination)
SA	Sistema Armonizado de Designación y Codificación de Mercancías (harmonized system for labelling and classification of merchandise)
SAFP	Superintendency of pension fund managers (AFPs)
SAG	Servicio Agrícola y Ganadero (agricultural service)
SBIF	Superintendency of Banks and Financial Institutions
SEC	Superintendency of Electricity and Fuels
Sectra	Secretaría Interministerial de Planificación de Transporte (interministerial transport planning agency)
SNA	System of National Accounts
SNA93 1993	System of National Accounts
SUT	Supply-Use tables
UN	United Nations
UP	Purchaser price

RUT	Tax identification number (Rol Único Tributario)
Sernageomín	Servicio Nacional de Geología y Minería (national mining and geology service)
Sernapesca	Servicio Nacional de Pesca (national fisheries service)
Sernatur	Servicio Nacional de Turismo (national tourism service)
SII	Servicio de Impuestos Internos (internal revenue)
SIPS	Superintendency of Health
SISP	Superintendency of Private Health Isapres
SISS	Superintendency of Sanitation Services
SNSS	Sistema Nacional de Servicios de Salud (national health service)
Sonapesca	Sociedad Nacional de Pesca (national fisheries body)
Srcei	Servicio de Registro Civil e Identificación (civil registry)
Subpesca	Subsecretaría de Pesca (undersecretary of fishing)
Subtel	Subsecretaría de Telecomunicaciones (undersecretary of telecommunications)
SVS	Superintendency of Securities and Insurance
TCP	Trabajadores por cuenta propia (self-employed)
UTM	Unidad Tributaria Mensual (Chilean tax accounting unit)
VAT	Value-added tax
WPI	Wholesale Price Index

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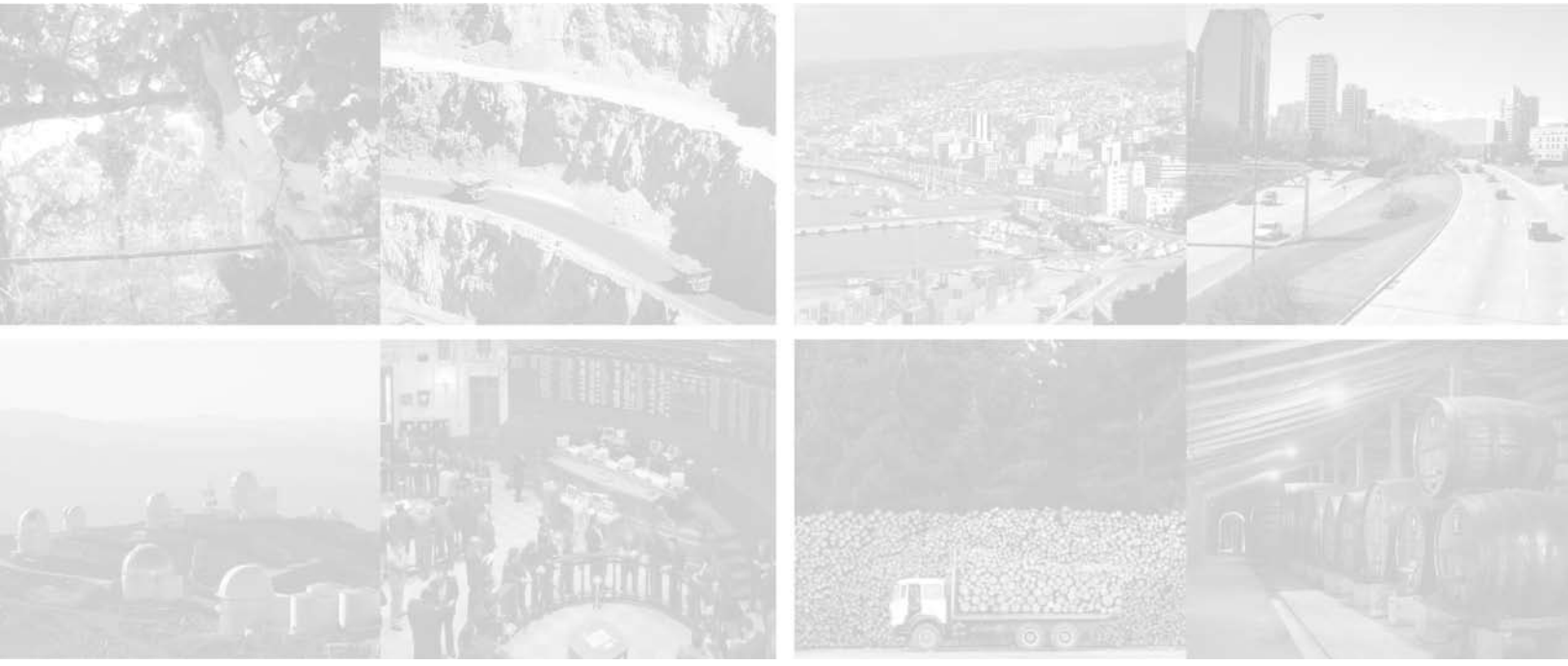

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