

# EMPLOYMENT STAGNATION IN CHILE: 1974–1978\*

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## INTRODUCTION AND MAJOR RESULTS

The employment growth rate during the last decade is one of the economic topics that has stimulated great attention in recent years. The absence of data that may be used for national level comparisons, however, has led to a number of inexact statements and positions on the problem. The purpose of this study is to fill in this informational vacuum in order to ascertain the data relevant to changes in employment in Chile for the period 1974–78.

In the last few years, statements have been made to the effect that the Chilean economy is generating spectacular increases in employment. “The number of working people has ostensibly increased in the last three years since employment rose 6.8% from September 1975 to September 1976, 9.8% from September 1976 to September 1977, and 5.8% from September 1977 to September 1978”; “Employment has constantly increased in the country by approximately 180,000 people in the year 1977”; “In Santiago, in the last three years alone (1976–79), 240,000 new jobs have been created.”<sup>1</sup>

The tendency has been to infer from these statements that employment in Chile has been growing at an annual rate close to 7%, which would imply that about 200,000 new jobs per year have been generated. Together with these supposedly high rates of growth in employment, unemployment has reached the highest levels known in the Chilean economy; in effect, since 1975, the unemployment rate has been at least twice as high as that observed in normal periods (during the 1960s).<sup>2</sup>

In order to understand how spectacular these official estimates of

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the creation of new jobs are, it is necessary to evaluate them in light of what has occurred in the past. During the 1960s, the annual rate of employment growth was about 2%, which implied the generation of 55,000 new jobs per year for the whole of Chile. In general, we may take the figure of 2% as a good indicator of annual growth in employment, labor force, or population. The government estimates consequently suggest that the current rate of growth in employment is more than three times the normal or historical rate.

The comparison of the alleged current rates of employment growth with the historical ones is, obviously, surprising. There is another comparison, however, that is also significant. Although it varies from country to country and from time period to time period, employment tends, at least in the medium run, to fluctuate significantly less than production. For example, if production increases at the rate of 2% annually, employment should grow at a lower rate. This does not hold for the official estimates of what has occurred in the area of employment in Chile. During the period 1974–78, the country's gross national product increased about 1.5% annually; thus, employment should have increased even less.<sup>3</sup>

What has happened is that these official interpretations have made inadequate use of certain sources of information. The conclusions about spectacular growth in employment are based principally on data for Greater Santiago. The use of that data raises two separate methodological problems, which are not mutually exclusive: (1) The measurement of employment growth in Greater Santiago requires a prior knowledge of the growth of the city's population; if Greater Santiago's population growth is overestimated, employment growth will be overestimated as well. An unknown in the growth of Greater Santiago's population is the impact of internal migrations (from the provinces to Greater Santiago and vice versa); this problem will be resolved only after we have the population census data of 1980. (2) The second problem is the extent to which employment growth in Greater Santiago is representative of trends in the rest of the country. There is, as far as we know, no research on this topic.

What matters about unemployment and the creation of new jobs (as well as other problems such as inflation, economic growth, etc.) is not what happens in Greater Santiago, but what happens at the national level. To that end, this study will focus primarily on the task of presenting national data. This will obviate the methodological problems posed by the use of data for Greater Santiago by reducing possible errors in estimates of the total population and of the extent of internal migration.

Two types of statistical sources are utilized in this study: (1) primary sources, such as the *Censo de Población* and the *Encuesta Nacional de Empleo*, generated by the Instituto Nacional de Estadísticas (INE), an

agency of the Ministerio de Economía; and (2) official sources, such as the *Exposición sobre el Estado de la Hacienda Pública* from the Ministerio de Hacienda, January 1979, and the *Encuesta Socio-Económica* (EDESEC), generated by ODEPLAN.

Based on these reliable sources, the evolution of employment in Chile is summarized in the following tables. The figures show that: (1) the rate of growth of employment for the period 1974–78 is practically nil; (2) the level of employment in 1978 is only 2.73% higher than the level of employment in 1970; and (3) the annual growth rate of employment for the period 1975–78 is 1.23%, far less than the annual 7% indicated in official pronouncements. In other words, during the period 1974–78, employment stagnated; in this four-year period, the number of jobs created was practically equal to the number of jobs eliminated through anti-inflationary policies, the push to open the economy to foreign trade, or the reduction of the public sector.

Had the Chilean economy generated jobs at the same rate that it did during the 1960s, 250,000 new jobs would have to have been created during 1974–78. In fact, 50,000 jobs were eliminated, implying that the social cost of the government's economic policies meant the loss of almost 300,000 jobs in those years. To this social cost one would have to add at least 120,000 persons "employed" under the Program of Minimum Employment who receive the equivalent of less than U.S. \$30.00 per month.

It has been argued repeatedly that the major cause of the high rate of unemployment has been the greater participation of the working-age population in the labor force. Exactly the opposite has occurred: the participation rate of the working-age population in the labor force decreased 5.6% between 1974 and 1978 and 8% between 1970 and 1978. Table 2 shows that the annual rate of growth for the labor force—those

TABLE 1 *Total Population, Population 12 Years and Over, Labor Force, Employed, and Unemployed in Chile: 1970, 1974–1978 (in thousands of persons)*

Years	Total Population	Population 12 Years and Over	Labor Force	Employed	Unemployed	Rate of Unemployment (%)
1970	9,367.6	6,455.6	2,950.1	2,770.1	180.0	6.1
1974	10,026.1	7,161.1	3,189.6	2,896.2	293.4	9.2
1975	10,196.4	7,339.1	3,169.8	2,743.5	426.3	13.4
1976	10,371.9	7,515.0	3,139.8	2,628.0	511.8	16.3
1977	10,550.9	7,691.5	3,197.4	2,750.7	446.7	14.0
1978	10,732.9	7,866.7	3,307.2	2,845.8	461.4	13.9

Source: Instituto Nacional de Estadísticas, ODEPLAN, and CELADE.

TABLE 2 *Growth of the Labor Force and Employment in Chile*  
(average annual rate of growth in percentages)

	<i>Growth of Labor Force</i>	<i>Growth of Employment</i>
1960–1970	2.0	2.1
1974–1978	0.9	–0.4

Source: 1960–1970: Ministerio de Hacienda, *Exposición sobre el Estado de la Hacienda Pública*, January 1979. 1974–1978, table 1.

employed and those looking for employment—for the period 1974–78 is practically half that of the decade of the 1960s. Indeed, had the 1978 rate of participation in the labor force of the working-age population been the same as it was in 1970, unemployment would have reached 21%. Thus, in view of the empirical evidence examined here, it is possible to conclude that the primary reason for high unemployment rates currently observed in Chile is that the economy has generated an insufficient number of jobs.

#### COMPARATIVE ANALYSIS OF THE RESULTS

Three different indexes of growth of employment at the national level for the period 1970–78 are provided in table 3 for comparative purposes. The first column is obtained from table 1; the second column corresponds to data from national household surveys conducted by the Instituto Nacional de Estadísticas (INE); and the employment index in the third column corresponds to the “national employment index” calculated by INE, its data coming from their quarterly surveys of private enterprises and public institutions, whose main purpose is the elaboration of the wages and salaries index.<sup>4</sup>

Taking 1970 as a reference point, it may be seen that the three employment indexes generally have orders of magnitude in the same range.<sup>5</sup> In fact, the figures indicate that in 1977, the 1970 level of employment had not been reached. While this work concludes that in the period 1974–77 employment decreased at an annual rate of 1.72%, INE’s surveys of private enterprises and public institutions suggest that employment declined during that period at the substantially higher rate of 5.2% annually.

As indicated at the beginning of this study, the data from the employment and unemployment surveys conducted by the Economics Department of the University of Chile have been used improperly by extrapolating the employment growth rates for Greater Santiago to the national level. This results in a double accounting of internal migrants toward Santiago.

TABLE 3 Employment Indexes, Chile: 1970–1978 (1970 = 100)

Years	Index of This Study	INE Household Surveys	INE Surveys of Private Enterprises and Public Institutions
1970	100.0	100.0	100.0
1974	104.6		115.3
1975	99.0	96.2	108.0
1976	94.9	97.1	99.4
1977	99.3	97.9	98.3
1978	102.7	103.5	98.3

Sources: Column 1: Table 1. Column 2: INE, Household Surveys. Column 3: Employment Index, INE, *Informativo Estadístico*.

In order to observe the effect of this double accounting for the period 1975–78, we will follow the same procedure used to determine the level of employment at the national level, with primary data provided by the Economics Department’s employment and unemployment surveys. That is, the participation rate (PR) and the employment rate (ER) data for Greater Santiago (Economics Department) will be used, and it will be assumed that they coincide with the values of the PR and ER at the national level;<sup>6</sup> then these values will be applied to the rate of population growth at the national level (using data from INE-CELADE). When this procedure is applied, the discrepancy between the employment index in this study and the employment index for Greater Santiago according to the Economics Department is reduced by almost 70% (see table 4, columns 1, 2, and 4).<sup>7</sup>

Since the behavioral characteristics of Greater Santiago’s PR and ER are not exactly the same as in the rest of the country, an additional adjustment must be made to this calculation. When the values of the Economics Department’s PR and ER are used for Greater Santiago exclusively, and the values of INE’s PR and ER are used for the rest of Chile (the entire country except Greater Santiago), the discrepancy between this study’s employment index and that of Greater Santiago according to the Economics Department’s data is then reduced by an additional 30% (see table 4, columns 1, 3, and 4).

Only 2.5% of the original discrepancy (that is, less than 1% at the employment level) between this study’s employment data and the Economics Department’s employment index for Greater Santiago corresponds to the existing differences of the values of the PR and ER for Greater Santiago provided by INE and by the Economics Department.

TABLE 4 *Employment Indexes for 1970, 1974–1978. Greater Santiago vs Chile (1970 = 100)*

Years	Index for Greater Santiago	National Population A <sup>a</sup>	National Population B <sup>b</sup>	This Study
1970	100.0	100.0	100.0	100.0
1974	114.5	106.5	—	104.6
1975	110.1	98.5	100.7	99.0
1976	115.5	101.4	96.1	94.9
1977	123.3	108.7	101.6	99.3
1978	131.7	111.7	103.4	102.7

Sources: Departamento de Economía (1970–78), INE (1979b), CELADE.

<sup>a</sup>PR and ER, University of Chile

<sup>b</sup>PR and ER for Greater Santiago—University of Chile; PR and ER for rest of Chile—INE.

## APPENDIX

### METHODOLOGICAL NOTES<sup>8</sup>

#### 1. Demographic Variables

To obtain the annual series for total population and population 12 years and over, the data used was that of INE-CELADE's joint projection, made official in April 1973. The basic information was provided by INE's Department of Demographic and Social Statistics and is also found, for five-year periods, in J. M. Puyol (1978).<sup>9</sup> The annual series for Chile's total population and population 12 years and over ( $P_{12+}$ ) for the period 1970–78 is provided in table 5.

#### 2. Economic Variables

To calculate the participation rate and the employment rate, the following data are required: the working-age population (population 12 years and over), the economically active population or labor force, and the employed population. The participation rate (PR) and the employment rate (ER) are relationships among these three variables. The unemployed population and the unemployment rate,  $d$ , may be obtained directly or through the abovementioned variables: in fact, the labor force (LF) is constituted by the sum of employed and unemployed, while the unemployment rate may be obtained as:  $d = 1 - ER$ . The basic data about the working-age population, labor force, employed and unemployed comes from the Instituto Nacional de Estadísticas (INE) surveys on employment and unemployment. At the national level, the existing source of data is the *Encuesta Nacional de Empleo* for the period 1975–78.

TABLE 5 Total Population and Population 12 Years and Over, Chile: 1970–1978 (thousands of persons)

Years	Total Population	Population 12 Years and Over
1970	9,367.6	6,455.6
1971	9,534.0	6,623.3
1972	9,697.4	6,799.3
1973	9,860.6	6,979.8
1974	10,026.1	7,161.1
1975	10,196.4	7,339.1
1976	10,371.9	7,515.0
1977	10,550.9	7,691.5
1978	10,732.9	7,866.7

Source: INE, Departamento de Estadísticas Demográficas y Sociales (unpublished data). For the five-year periods, see Pujol (1978), table 9, p. 25, and table 8, p. 21.

Sampling design of this survey has been done using the Population and Housing Census of 1970. The size of the sample is 23,440 households (see table 6).

A special problem that must be resolved is the transformation of the survey data covering a certain monthly period (two to six months), to the equivalent data corresponding to an annual period. The process used to effect such adjustment is explained in the following section.

### 3. Conversion of the Basic Data to the Annual Period

The first step is to use the demographic data based on the year's halfway point (June 30) and not on the survey's date.

The methodological process used to calculate the PR, ER, and  $d$  on an annual base for the period 1975–78 is relatively simple, due to the limited amount of data available for that period. (The methodology used to obtain data prior to 1975 will be described in number 5, below.) There is only one INE national survey for each year, and generally the period encompassed by the survey corresponds to the fourth quarter (the exception being the year 1975 in which the survey covers approximately the third and fourth quarters). In order to convert such quarterly data to its annual equivalent, the data used has been that of INE's four quarterly surveys (for each year) of Greater Santiago.

Let  $Y_4$  represent a generic variable corresponding to any of these concepts: participation rate and unemployment rate, in the fourth quarter of the national survey. Let  $Y_4^s$  represent the variable corresponding to  $Y_4$ , but for the values observed in INE's fourth quarterly survey of Santiago; and let  $Y^s$  represent the annual average (simple) of the generic variable observed for Santiago:

TABLE 6 *Population 12 Years and Over, Labor Force, Employed, and Unemployed at the National Level. Chile: 1975–1978. Basic Data According to Surveys (thousands of persons)*

Survey Code	Period	Population 12 Years and Over	Labor Force	Employed	Unemployed	Unemployment Rate (%)
1	1975 (October)	7,555.1	3,183.5	2,715.9	467.6	14.7
2	1976 (November)	7,740.1	3,151.2	2,741.7	409.5	13.0
3 <sup>a</sup>	1977 (November) <sup>b</sup>	7,756.4	3,124.5	2,762.8	361.7	11.8
4 <sup>a</sup>	1978 (November)	7,931.0	3,393.2	2,921.0	472.2	13.9

Source: INE (1977) and (1979a).

<sup>a</sup>These surveys are presented with a new population projection.

<sup>b</sup>Data recently modified by INE.

$$\bar{Y}^s = \frac{\sum_{j=1}^4 Y_j^s}{4}$$

Assuming that the changes in variable Y at the national level throughout the year are similar to that observed at the level of Santiago, then:

$$Y_t = Y_4 \frac{\bar{Y}^s}{Y_4^s}$$

This formula has been used to convert the survey's quarterly data to its annual equivalent and then the PR, ER, and d are obtained on the annual base; table 7 provides this data. (In the case of 1975, a modification of this formula, with coverage corresponding to the third and fourth quarters, was used.)

#### 4. Annual Data for the Period 1975–1978

The methodology used to obtain annual data for the period 1975–78 has two steps: (1) A base year has been determined, and data on the level of employment have been elaborated in absolute terms for it; (2) then, from this base year, the data for the rest of the years in the period is obtained through the annual variation with respect to the base year of the variables  $P_{12}$ , PR, and ER.

a. *Data for the base year* / For the period 1975–78, besides the Encuesta



TABLE 7 Participation Rates, Employment Rates and Unemployment Rates at the Annual Level. Chile: 1975–1978 (percentages)

Year	Participation Rate (PR)	Employment Rate (ER)	Unemployment Rate (d)
1975	42.96	86.55	13.45
1976	41.56	83.70	16.30
1977	41.35	86.03	13.97
1978	41.82	86.05	13.95

Source: INE (1977) and (1979a).

Nacional del Empleo there is another source, the *Encuesta Socio-Económica* (EDESEC), prepared by ODEPLAN (1976).<sup>10</sup> In order to utilize the greatest amount of available data, both surveys should be considered for the year 1976. The year 1976 has been called the base year and is used as the pivotal year from which to elaborate the data for the subperiod; in other words, the base year provides the starting point for the series, and the rest of the years of the subperiod are obtained through the annual variations of the variables (according to the values provided by the employment surveys of INE) in relation to the base year.

This methodological procedure is applied to obtain the initial data of the participation rate, the employment rate, and the unemployment rate. Of these three variables, the PR possesses the greatest relative incidence in the final results of the absolute levels of employment; in other words, “slight” numerical fluctuations in the value of PR have a relative impact significantly larger than similar fluctuations in the ER and d. In fact, given the difference of the absolute magnitudes of reference ( $P_{12}$  for the PR and LF for the ER and d), an error of 5 points in the PR is equal in absolute terms to an error of approximately 12 points in the ER; thus, special care has been taken in determining the most appropriate values for the PR. The EDESEC survey by ODEPLAN provides a value of 0.4200 for the PR; INE’s survey provides a value of 0.4156. The simple average of these two values is used in this study.

*b. Data for the remaining years* / The subindex *b* is used to refer to the information for the base year, and the subindex *t* to refer to the data for a *t* year, that is, any other than the base year. Using the INE-CELADE data on the population 12 years and over, and the value of the PR described above, the value in absolute numbers of the labor force (LF) in the base year is obtained.

Let  $(LF)_t$  represent the labor force in the year *t*. Applying the following definitional relationship, it is observed that:

$$(1) \quad (\text{LF})_t = \frac{(\text{LF})_t}{(\text{P}_{12+})_t} \times \frac{(\text{P}_{12+})_t}{(\text{P}_{12+})_b} \times \frac{(\text{P}_{12+})_b}{(\text{LF})_b} \times (\text{LF})_b$$

INE                      CELADE                      INE                      BASE

Rearranging formula (1) and introducing the PR we have:

$$(2) \quad (\text{LF})_t = \frac{(\text{PR})_t}{(\text{PR})_b} \times \frac{(\text{P}_{12+})_t}{(\text{P}_{12+})_b} \times (\text{LF})_b$$

INE                      CELADE                      BASE

In formula (2) all the elements necessary to calculate the  $(\text{LF})_t$  are available. The  $(\text{PR})_t$  and the  $(\text{PR})_b$  are taken from INE's surveys on employment (table 7);  $(\text{P}_{12+})_b$  is taken from the data provided by INE-CELADE (table 5);  $(\text{LF})_b$  is computed as previously indicated.

Formula (2) indicates that the LF for any given year is obtained from the LF for the base year and considering two effects: changes in the participation rate and changes in the working-age population. Once the LF has been obtained for each year  $t$ , the number of employed persons,  $E$ , is obtained by using the employment rate (ER); that is:

$$(3) \quad E_t = (\text{LF})_t \times (\text{ER})_t$$

In other words, the employment  $E_t$  for any given year  $t$ , as well as for the base year, is obtained by multiplying the LF for that year by the corresponding ER. The LF is obtained, as previously indicated, through formula (2); the ER is obtained directly from INE's surveys on employment and unemployment (table 7). The number of unemployed persons for any given year is obtained by calculating the difference between the LF and the number of employed persons.

Table 1 provides the final values of the total population, population 12 years and over, labor force, employment, and unemployment at the national level, calculated according to the methodology previously described.

### 5. Data Previous to 1975

The purpose of this paper is to compile data on the evolution of employment for the period 1974–78. We are also interested in determining the level of employment for 1970 in order to have a reference point for this period. In this section we will discuss separately the existing data used to determine the levels of employment for the years 1970 and 1974.

Three data sources on the level of employment for 1970 are available: (1) INE's Continuing Survey of Labor; (2) Population Census; (3) CELADE-ODEPLAN. The discrepancy between these sources at the

employment level is less than 2.5%. In this work we have opted for the third alternative.<sup>11</sup> The rationale for this decision is that the employment level proposed by ODEPLAN for 1970 coincides with what would have been our own estimate for the same year if we projected the 1975 levels of employment back in time, utilizing the participation rates and the employment rates from the Employment Survey conducted by the Economics Department of the University of Chile.

In order to determine the level of employment for the period 1971–74, it is necessary to estimate the participation rate (PR) and the unemployment rate ( $d$ ) for each year. With this data and INE-CELADE's estimates of the population 12 years and over, it is possible to measure the labor force, the total number of employed, and the total number of unemployed for each year of this period.

The procedure utilized to obtain the employment level for each year of the period 1971–74 is the following: (1) The unemployment rate at the national level is taken from ODEPLAN's estimates (Ministerio de Hacienda, 1979, p. 49). (2) The PR is obtained through the following procedure: (a) The national PR for 1970 and 1975 is already known; also, the PR for Greater Santiago for the years from 1970 to 1975 is available from the employment and unemployment surveys of the Economics Department of the University of Chile. (b) The assumption is that the evolution of the PR for Greater Santiago (Economic Department's values) is similar to the national PR; then, this data has been replotted utilizing as bases the existing relationship between the national PR and that of Greater Santiago for 1970 and 1975. The resulting data for 1974, which is the one pertinent to this study, is provided in table 1; the data for 1971, 1972, and 1973 may be calculated by following the procedure previously explained.

#### NOTES

1. These conclusions have been advanced by various authorities in the government. They have been taken from *El Mercurio* of 4 October, 1978, 24 January, 1978, and 18 August, 1979, respectively.
2. On this topic, see Meller (1979).
3. This relationship between production and employment may be altered when significant structural changes occur in the economy. As will be seen later, during this period while employment decreased, production increased. Such changes as the reduction of the public sector were relevant to this process.
4. In addition to the sources already mentioned, another is ODEPLAN's employment estimates at the national level for the period 1970–78. These estimates, however, suffer from serious errors for the years following 1970, because ODEPLAN arbitrarily assumed that the participation rate remained constant since 1971. Although ODEPLAN utilizes an adequate participation rate for 1970 based on CELADE's data, all existing empirical data indicate that the participation rate decreased rather than remained constant after 1971.
5. Note that an important part of the discrepancy between data from this work and that from INE for the period 1975–78 is due to the fact that this study's data centers on 30

- June, while INE's data centers on the month of November. In numerical terms this implies a difference of nearly 30,000 persons. INE data is provided only for those years for which it is available.
6. Given the difference in the definition of the working-age population (fourteen years and over by the Economics Department and twelve years and over by this study), a small adjustment was made in the PR's original data.
  7. Note that results similar to those obtained in column 2 of table 3 are obtained by deflating the Economics Department's employment index for Greater Santiago through the relationship existing between the annual rate of growth of the working-age population for Greater Santiago and that for Chile; the relevant values are 4.665% and 2.502%, respectively.
  8. This section is an abstract of the methodology used for this study. For more details, see Meller, Cortazar and Marshall (1979).
  9. This population estimate according to CELADE contains an assumption about international migrations that tends to overestimate population growth in Chile. CELADE estimates the total of international migrations from 1970 to 1978 at 46,200 persons. The net exits from Pudahuel Airport alone, however, number 146,690 for the same period (see INE, *Informativo Estadístico*). This discrepancy only implies that the resulting data at the level of employment for 1978 are overestimated by about 1%.
  10. ODEPLAN took the *Encuesta Demográfica y Socio-Económica* (EDESEC) in July 1976. Sampling design is based on the Population Census of 1970. The size of the sample was 37,000 family units.
  11. To have considered some of the other alternatives used to measure the employment level for 1970 obviously does not affect the employment growth rates computed in the previous section.

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