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UNEMPLOYMENT AND WAGES IN CHILE: A DYNAMIC PERSPECTIVE USING SYNTHETIC COHORTS

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ABSTRACT

We use artificial cohort data for Santiago de Chile (1957 to 1996) to analyze labor market performance of specific cohort and age groups. We are particularly concerned with the relevance of this methodology to evaluate labor market performance indicators as compared to cross section analysis. This analysis allows us to evaluate questions such as the effect of being unemployed when young on the probability of being unemployed in the future. Also the analysis provides a long run perspective on the evolution of wages and unemployment. The results downplay the effects attached to the mid 1970 reforms on the Chilean labor markets.

1. INTRODUCTION

The history of the Chilean labor market during the last 25 years offers great analytical interest. During the decade of the sixties the unemployment

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rate was relatively stable in the order of 6%. Later, as a reflection of the stabilization policies and structural reforms of the mid-seventies, the unemployment rate increased to over 15% without responding substantially to the recovery in the product. Towards 1983, the external debt crisis triggered a new increase in unemployment, when the rate reached an historical record above 30%. In the years which followed, there was a continuous decrease in the unemployment rate, until in the early 1990s it became stabilized once again at values close to 6%.

The labor market in Chile has been analyzed in different studies. In this regard, two comprehensive surveys (Riveros, 1985 and Sapelli, 1996) have reported a great number of works and hypotheses that attempt to explain the evolution of the main labor market indicators. The approaches and the sources of information have been varied; time series with aggregated data (e.g., Rojas, 1986, Paredes Molina and Riveros, 1994, and Jadresic, 1986), cross section data from surveys to households and surveys to companies (e.g., Corbo and Stelcner, 1983, Cox and Edwards, 1996, Basch and Paredes Molina, 1996 and Cahmi, Engel and Mico (1997).

Despite the above, there has been a noticeable lack of analyses based on data which follow-up people or groups across time. This has had a bearing on the relative scantiness of analyses on the behavior of age groups, which are not adequately trapped in cross-section data or time series using aggregated information. This has also been an obstacle to understanding dynamic aspects of the labor market, such as wages and unemployment evolution, average time of unemployment, probability of finding a job and effect of labor experience on wages. The effort made by the analysts to answer such questions without adequate data is valuable, but they only come up with conclusions of a preliminary nature (e.g., Haindl, 1988, and Muchnick and Valdés, 1987).

In this paper we resort to a series of cross-section surveys to generate artificial cohorts data, which to some extent substitute the data which could originate from a panel survey and which is not available. We focus on presenting the methodology and analyzing the dynamics of unemployment and wages across generations and the life of individuals. This method makes it possible, for instance, to analyze the effect which unemployment periods affecting young people have on their future labor market performance, an aspect which can not be analyzed on the basis of cross section data alone.

The paper has four sections, in addition to this introduction. The second section describes the methodology of artificial cohorts. The third section hinges on the data used and the decomposition of the dynamic effects. The fourth section, showing the potential of the methodology, explores an application to youth unemployment. The conclusions are put forth in the fifth section.

2. Methodology

The socio-economic data are commonly available in two formats: at the level of individual observations (households or individuals) measured through surveys in cross sections and in time series at an aggregated level, typically used as time series. However, to understand most of the socio-economic topics involved, there is the need to know the dynamic aspects of the behavior of people and groups of interest. To such an end, the panel data provides suitable information, as it is based on the follow-up of a sample of people (or any other unit of study) across time. The problem with the panel is that it is costly, time-consuming in terms of obtaining results and offers problems in that the sample may lose its representative level across time.

Within this context there arises, as an interesting alternative, the study of artificial cohorts, which are developed on the basis of series from cross section surveys. A cohort of individuals is defined as a group of people born the same year, which can be followed across time through samplings. That is, successive surveys randomly represent the population born during a specific year, so that it is possible to follow the behavior of the cohort across time even though there is no single sample of individuals. The procedure entails that the representation of the population by each cohort remain relatively stable across time, which does not occur when important segments of the cohort disappear from the population due to migratory effects (e.g., military service) or to permanent causes (e.g., deaths).

In other words, we expect that the random sample of 18 years old men in a survey conducted in the year 1957 would belong to the same population (sampling universe) than the men aged 28 chosen randomly in the survey carried out in 1967, and those of age 38 in the 1977 survey. The series developed in this way have desirable properties, which for certain purposes are even better than those in a panel study (Deaton, 1995)[1].

An unemployment series built on the basis of cohort data combines different effects. Consider, by way of example, that the 18 years old men in 1957 show an unemployment rate similar to that of men aged 38 in 1977. It does not follow from this that the probability of unemployment of the group remains stable as people become older, since it involves different macroeconomic contexts. Thus, in the case that the unemployment rate of the population as a whole during 1977 were much higher than that in 1957, it would mean that the probability of being unemployed, all other things being equal, falls with age. Therefore, controlling for the effect of economic cycle is necessary to evaluate the effect of age on the probability of being unemployed or the effect of age on labor participation. Also, there may exist a specific effect of the cohort (which was 18 years old in 1957), ascribable to specific institutional regimes, human capital endowment or others.

1 For instance, data for artificial cohorts are not affected by attrition.

The information on artificial cohorts retains some of the main advantages of the panel data. In particular, it makes it possible to separate the effects of the life cycle from those associated with each generation of individuals (cohort effect). These effects can not be perceived in a cross section sample. As stated, a typical case are the income profiles which in cross section studies contain both the life cycle effect (labor market experience) as well as those associated with the generation (educational quality, preferences, technology, etc.). Unless the latter effect is null, predicting income of the young generation can not be reliably done on the basis of present information. In turn, the information for cohorts enables us to isolate both types of effects, age and generation.

Likewise, the information for the cohort features a semi-aggregated structure which makes it possible to relate microeconomic characteristics which are present in the survey of the households or people, with the macroeconomic information associated with national accounts and other aggregated data. It also makes it possible to know the effect of demographic factors on the aggregated variables, as these are developed on the basis of weighted averages of different cohorts. Finally, the information for the cohort allows to deal with the non-observable fixed effects in the same way as the panel does, that is, taking first differences them.

There exist, however, some problems specific to the econometric estimates which are based on artificial cohorts. As the sample of individuals does not remain fixed it is necessary to work with population aggregates, of which the sample approximation includes an error term which changes with the size of the sample. This requires correcting the parameters estimated by the variances and covariances of the corresponding sample factors[2]. On the other hand, and unlike the panel, the follow-up of the cohort does not provides information on the dynamics within the cohort or the joint distribution of characteristics across time. Thus, it does not help to analyze the duration of unemployment for specific groups of people or the structural and transitory nature of poverty. Also, a serious problem of the follow-up of cohorts is associated with the age of the household as a representative unit. The traditional procedure is to classify the household according to the age of its head. However, the changing nature of the family living in the household may introduce serious measurement errors when this methodology is applied to households rather than individuals.

The lack of panel data and the positive properties of the construction of cohorts explains the increasing popularity of these studies. Attanazio (1993) estimates an age-savings profile and identifies systematic movements of this variable across different generations of individuals for the United States. His explanation for the recent evolution of savings of people on the basis of the life cycle effect of different generations allows to reject other traditional explanations based on more restricted (aggregated) information. Attanazio and Browning

2 This is the only use me make for other than first central moments of the distribution. In this sense, cohort information allows to perform other test to further analyze the labor markets.

(1995) study the empirical validity of the life cycle model using a cross section time series and a new definition of the parameters for preferences. They find that the excessive volatility of consumption with respect to labor income disappear when controlling for demographic variables and that intertemporal elasticity increases with the level of consumption. Deaton and Paxson (1994a) use information for cohorts for the United States and the United Kingdom to analyze the permanent income hypothesis. Deaton and Paxson (1994b) use cohorts for Taiwan to investigate the impact on the welfare of older generations under a life cycle model.

Most studies which resort to artificial cohorts have dealt with consumption topics. In turn, labor market aspects have not been addressed with the same depth and definitely, at least in the case of LDCs, basic issues regarding social mobility, return on education and on-the-job-training have not been approached at all despite the potential offered by this methodology.

2.1. Decomposition by Age, Year and Cohort Effects[3]

Following-up a variable Y (e.g., income or unemployment) across artificial cohorts may be adequately represented by three types of generic effects: Age (A), cohort (C) and year (T). The age effect stands for that part of variable Y which is associated with the life cycle of people; the cohort effect represents the effect of characteristics specific to each generation on the variable Y, and the year effect relates to those variations in Y which appear in synchronized fashion for the different generations in a given year (e.g., cyclical factors). The cohort effect evidences both characteristics of the cohort itself, such as, for instance, its demographic structure, educational level and attitudes to risk, as well as factors of a macroeconomic nature which are associated with each generation (e.g., technological level, capital stock, etc.).

The more general representation of the effects A, C, and T is attained through the econometric estimation of the following expression:

1) $$Y = B + A\alpha + C\gamma + T\varphi + u$$

where Y is a vector of dimension m, in which m is the total observations cohort/year. A is a matrix of dummy variables for each one of the ages of dimension considered (m, e-1), in which e is the total of ages and a is the vector of associated parameters. C is a matrix of dummy variables for each one of the cohorts, of dimension (m, c-1), where c is the number of cohorts and γ is the vector of respective coefficients. T is a matrix of order (m, t-1) where t is the total number of years considered.

A problem associated with the foregoing decomposition is that the matrices A, C, and T are collinear. That is, if the cohort and the year are known, the

3 This decomposition closely follows Deaton (1994).

age can be inferred. For instance, if we define cohort 60 as the generation of people who were 14 years old in 1969, then, we know that cohort 60 in 1982 must be 36 years old. To deal with this problem we then normalize the variables following Deaton (1994). Specifically, we retain the definition of the matrices A and C, and we redefined matrix T on the basis of T-2 vectors developed as follows:

2) $d^*t = dt - (t\text{-}1)\, d2 - (t\text{-}2)\, d1 \qquad \text{for } t = 3 \ldots\ldots T.$

where dt is the usual vector for yearly dummies with value 2 for year t. This normalization makes the matrix T orthogonal to matrix C and makes it possible to recover the original parameters α, γ, and φ.

3. Decomposition of Cycle, Age and Cohort Effects on Wages and Unemployment

The data considered in this study were obtained from the Employment and Unemployment Surveys for Greater Santiago de Chile in the month of June, between 1957 and 1996, and the sample covers slightly less than 50% of the total labor force in the country. These surveys have been conducted by the Department of Economics of the University of Chile uninterruptedly and allow obtaining the longest series of data available in Chile.

Fifty two age groups between 14 and 65 years old were defined. This made it possible to define 90 cohorts, beginning with those corresponding to people which were 14 years old in the year 1906 (i.e., who were 65 years old in 1996) up to those who were 14 years old in 1996. The cohorts were designated in terms of the year at which the individuals were 14 years old. The decomposition of the labor history of each group of workers was made on the basis of the behavior of only two variables: unemployment and wages. These estimates were made only for men, which reduces the biases arising form truncated samples[4].

Wages and unemployment are two critical labor market variables that we analyze here. As apparent from the methodology described above, we do not have a structural model explaining the evolution of the variables. Instead, we decompose the evolution in the three mentioned effects. Variables affecting the unemployment rate, such as minimum wages, are not directly considered, though they are implicitly taken into account in the year effect. The model was estimated using GLS, had 2080 observations and hence, 1885 degrees of freedom. The coefficients for the dummy variables based on the regression (1) and matrix T redefined following (2) for the logarithm of the hourly wage and the unemployment rate are shown in the appendix. The estimates considered average years of schooling for each group as an independent variable, in addition to

4 Paredes (1998) uses Heckman's methodology to correct selectivity biases in cohorts in his labor force participation estimation.

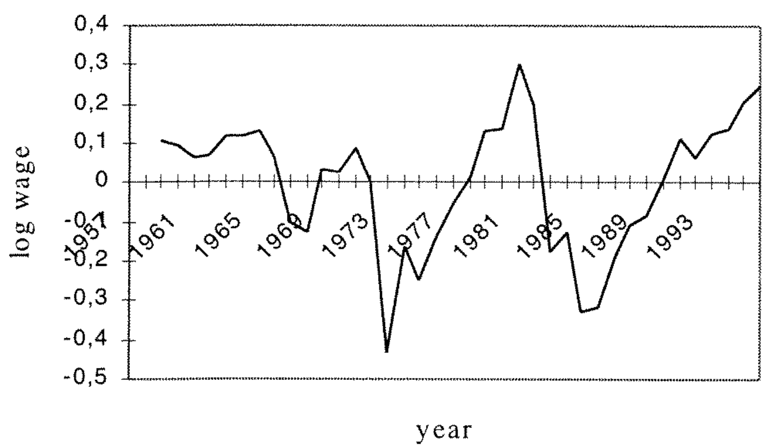
the set of dummy variables that decompose wages and unemployment in cycle, age and cohort effects. The results show relatively good fits, with a significant F test for each model and R2 of 71% and 55% for the wage and unemployment models, respectively.

3.1 Effect of Economic Cycle

The year effect, which isolates the effect of the economic cycle, is expected to be particularly string in specific periods of Chilean history and which have been clearly identified in the literature[5]. The most relevant and identifiable periods are two: 1974-1981 and 1982-1996. Even at the risk of oversimplifying, the first of these periods witnessed a stringent adjustment during three years (1974-1976) and a strong recovery which followed it until 1981. The second period also features a strong drop in the product in 1981 and 1982 and an upturn and sustained growth as from 1985.

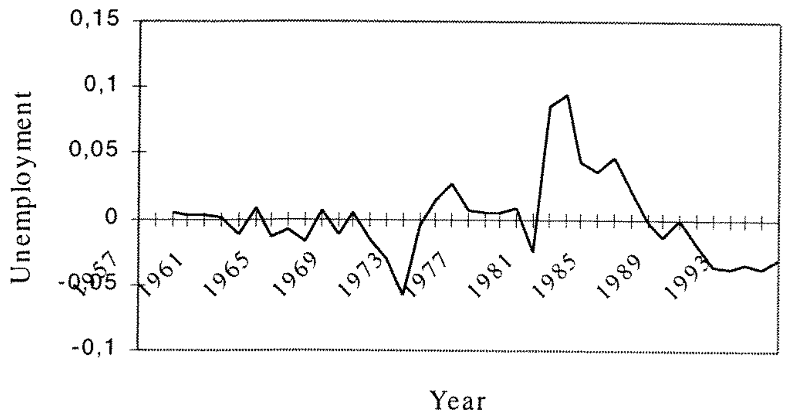
The above mentioned episodes were clearly trapped in the estimates of the cycle effect and are illustrated in figures 1 and 2. This effect is very consistent with the relevant literature on the labor market. The crisis and the recoveries reflected in the estimates, but in a much clear way in the case of wages than in the case of unemployment. In particular, the recovery in output in the late 1970 was followed by an increase in wages, but not for a clear reduction in unemployment.

FIGURE 1
YEAR EFFECT ON WAGES



5 See, for instance, Edwards and Edwards (1987) and Paredes Molina and Riveros (1994).

FIGURE 2
YEAR EFFECT ON UNEMPLOYMENT



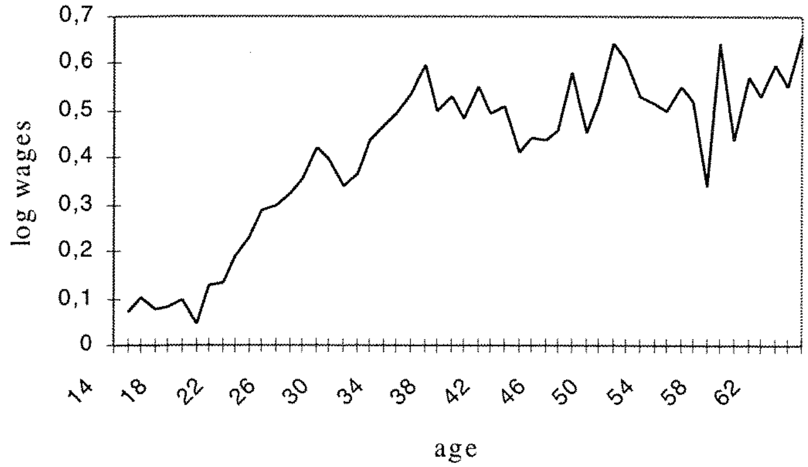
3.2 Age Effect

3.2.1 Age-Wages Effect

The effect of age on wages has been widely developed both theoretically and empirically on the basis of the human capital theory. Age, particularly in the case of men, is a very acceptable proxy for potential experience at work and therefore for on-the-job-training. Therefore, it is a somewhat standard practice to include age (or what is in estimation terms the same, potential experience measured as age – schooling – 6) in à la Mincer equations.

Figure 3 shows the logarithm profiles for wage–age which is not in the line suggested by most cross section studies. Though the wage profile for age is concave, it does not feature falls in wages after an age close to 50, as it is the case in cross section studies. In fact, as can be seen from the wage profile estimated using cohorts, wages increase to a maximum at about age 38 and then they remain stable, without displaying falls. This difference in cross section and cohort estimates is consistent with an hypothesis suggesting that more recent generations are progressively more skillful, effect that is not captured by observable variables. This could cause a downward bias of the experience coefficient in cross section studies. This mean that people, through the life cycle, would not become less productive, as a cross section estimate could suggest.

FIGURE 3
AGE EFFECT ON WAGES



To compare the "return on age" obtained from cross section data and cohorts, we adjust the data of figure 3 to a linear, a quadratic and a cubic function of age (table 1). The return thus obtained are consistent with the sign of returns obtained using cross section, but are larger somewhat bigger[6].

TABLE 1
RETURNS ON POTENTIAL EXPERIENCE
(dependent variable, log wage)

	Const	age	age2	age3	R2	N	F
Cohorts							
Coeff	-1.15	.10	-.0018	.00001	.88	812	4991
t test	(-37.5)	(37.4)	(-27.4)	(21.7)			

3.2.1 Effect on Unemployment

There does not exist with respect to unemployment, a life cycle theory as elaborated and supported as in the case of the effect of age on wages. Works have been developed with respect to the effect of the accumulation of human capital as a facilitator of job searches. However, it does not exist for Chile any estimations

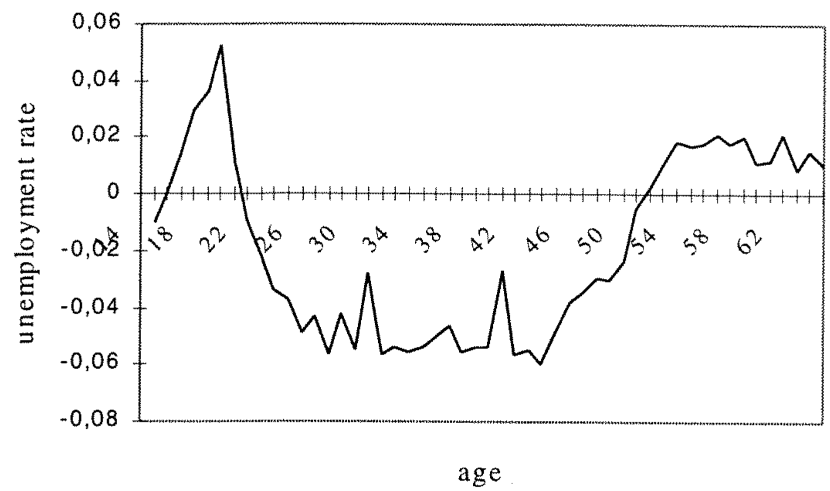
6 For instance, Basch and Paredes (1996) report returns of 2.7% for people 20 years old in the year 1985, a relatively high return compared with other years. Results in table 1 imply that a 20 years old worker will have a 3.2% return on age.

which specifically show a pattern of unemployment through age. However, different theories and studies supporting them explain what we present in figure 4, a U-shaped unemployment profile through age[7].

The age effect is important and reflects differences of up to 10 points of unemployment over a period of ten years. Thus, 18-years old people have had unemployment rates 10 points higher than those which affected them ten years after. However, the data shows that unemployment rates increase later again, when people are over 45 years old. In fact, the unemployment rate has been 7 points higher at ages in the order of 55 than in ages in the order of 40.

The relevance of this profile relates to the implication on social policies. Older age groups could not only display less adaptable capabilities to face changes in their specific abilities (see, Sapelli, 1996). Consequently, the probabilities for reinsertion when old people become unemployed would be lower than in the case of middle age people. Furthermore, in a context of progressive change, old people would become more and more vulnerable.

FIGURE 4
AGE EFFECT ON UNEMPLOYMENT



3.3 Cohort Effect

The third effect we isolate is the cohort effect. The differences across cohorts enables us to identify effects in the institutional setup, changes in the quality of education, or events as the labor reform in the late seventies. Figures 5 and 6 show that between 1906 and 1942 there was a clear trend to wage increases for the more recent cohorts. This was to be expected if there was an increase in the quality of education. Contrariwise, a noticeable drop in wages for the more

7 For instance, the concave profile in productivity suggested by human capital models, together with a flat minimum wage would predict a U shaped unemployment curve.

recent cohorts can be seen since the early forties. This is consistent with different hypotheses, particularly the one which suggest a baby-boom effect which would be disappearing as from the late eighties.

In turn, for the cohorts up to the mid forties, unemployment was practically stabilized for each generation, to begin to increase on a sustained basis from those generations. There is little evidence to posit that such a trend has started to show a reversal.

FIGURE 5
COHORT EFFECT ON WAGES

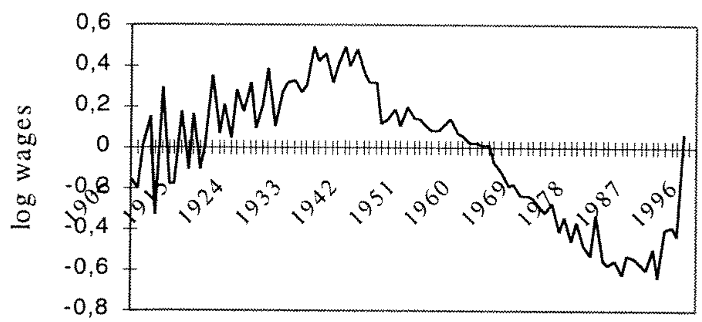
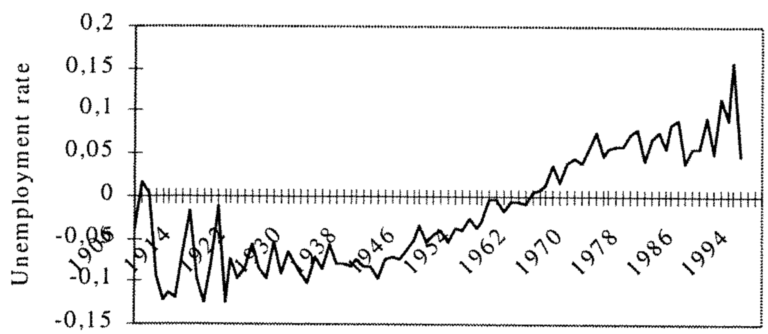


FIGURE 6
COHORT EFFECT ON UNEMPLOYMENT



4. Application of the Methodology to the Analysis of Youth Unemployment

The rate of unemployment for young people has been historically much higher than for the rest of the labor force. This has motivated the introduction of policies aimed at lowering youth unemployment in different countries. The most substantive reason for this is based on the idea that young people would not have the means to smoothen their consumption (e.g., running into debt). Furthermore, such policies would be especially valid when youth unemployment affects subsequent labor market performance, productivity and growth.

However, the fact that young people at a given year show more unemployment than adults does not mean that such unemployment should persist in time. Due to the above, the concern regarding youth unemployment should be stated from a dynamic perspective.

Dynamic analyses of the type required to answer whether youth unemployment that has persistent effects can be performed on the basis of cohort data and may not be performed using cross section studies. Thus, cohort data makes it possible to test the effect of the unemployment when young, on unemployment through life. Specifically, we estimate an unemployment equation using as independent variables the unemployment rate of the cohort when it was young.

Specifically, we estimate the following regression:

$$(3) \qquad Uit = \alpha o + \alpha 1\ UWYi + \alpha 2\ (UWY*Agei) + \alpha 3\ Ut + Vit$$

where Uit is the unemployment rate of cohort i in period t; UWYi is the unemployment rate of cohort i when it was 18 years old, (UWYi*Agei) is an interactive term to capture the eventual change in the effect of UWY over life; Ut is the unemployment rate in t and Vit is an error term.

We initially considered the unemployment rate at 18 years old as "unemployment when young" (UWY). However, this variable considers the cohort effect, so we considered as UWY to the coefficient of the year effect on the variable unemployment, which reflects the deviation of performance during the specific year when the cohort was young[8]. The result of the estimates are shown in Table 2.

TABLE 2
EFFECT OF UNEMPLOYMENT WHEN YOUNG
(Dependent var: Unemployment Rate)

	Constant	Unempl. when Young (UWY)	UWY*Age	Unempl. Rate	Age	Age^2	N	F	R^2adj
Coeff.	0.55	0.40	0.01	1.38	-0.03	0.0004	812	452	.074
T test	25.9	2.26	1.73	33.8	22.3	18.2			

The estimates presented in Table 2 show that unemployment when young has negative and permanent effects on unemployment during the lifetime. This effect does not disappear to a considerable extent through time since the coefficient

8 Thus, we isolate the effect which the cohort itself imposes on total unemployment.

of the interactive term is small and not statistically different from zero. However, more important from our perspective is that this exercise shows an enormous potential of the methodology to answer different questions that have not been explores in the Chilean case.

5. Conclusions

This paper stresses the importance of complementing labor market cross-section studies with dynamic analyses, such as through synthetic cohorts, which enable us to follow-up samples of individuals through time, and are excellent substitutes for panel data to analyze questions which are not suitably addressed in cross-section studies.

A first conclusion stemming from this paper, and which most certain unfolds a number of issues is that the positive trend in wages of the most recent generations which took place at the turn of this century, is reverted at the beginnings of the forties and becomes definitely negative ever since. Only at the beginnings of the eighties this trend seems to lose momentum. Also, it is possible to perceive a change in the trend of unemployment for new cohorts in the forties, which then becomes increasing. These observations downplay the effect of the structural changes of the seventies. Specific studies on the reasons for this trend should be conducted, to as to come up with a move complete vision of what the evolution of the labor market has been in Chile over the last years.

To fully show the potential of this methodology, a concrete application to a relevant issue of youth unemployment was made. The unemployment rate for young people has been historically very high, though it drops over a relatively short period of time. We addressed the question of whether there a conceptual basis to develop policies for the young exist. Cohort analysis enables us to state that such a basis does exist. Abnormally high unemployment rates which can be associated with the economic cycle, will leave a permanent negative effect on their probabilities of becoming employed. Policies aimed are lowering youth unemployment will then have permanent positive effects.

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APPENDIX
YEAR EFFECT

Year	Wages coeff.	test t	Unempl. coeff.	test t
1957				
1958				
1959	0,103	1,931	0,006	0,507
1960	0,092	1,811	0,002	0,209
1961	0,061	1,158	0,003	0,304
1962	0,072	1,348	9E-04	0,083
1963	0,119	2,159	-0,01	-0,93
1964	0,12	2,213	0,009	0,802
1965	0,133	2,53	-0,01	-1,32
1966	0,064	1,253	-0,01	-0,75
1967	-0,1	-2,06	-0,02	-1,69
1968	-0,13	-2,4	0,006	0,582
1969	0,03	0,521	-0,01	-0,97
1970	0,025	0,523	0,006	0,557
1971	0,09	1,927	-0,02	-1,62
1972	0,003	0,065	-0,03	-3,17
1973	-0,43	-8,28	-0,06	-5,19
1974	-0,17	-3,23	-0	-0,45
1975	-0,25	-5,45	0,014	1,471
1976	-0,14	-3,23	0,026	2,934
1977	-0,05	-1,24	0,007	0,814
1978	0,014	0,352	0,004	0,536
1979	0,128	3,087	0,004	0,501
1980	0,139	3,485	0,009	1,158
1981	0,299	7,904	-0,02	-3,11
1982	0,196	5,014	0,085	10,51
1983	-0,18	-4,59	0,095	11,78
1984	-0,13	-3,41	0,043	5,606
1985	-0,33	-9,09	0,037	5,009
1986	-0,32	-8,72	0,048	6,497
1987	-0,19	-5,48	0,021	3,081
1988	-0,11	-3,15	-0	-0,36
1989	-0,08	-2,55	-0,01	-2,06
1990	0,009	0,281	-0	-0,18
1991	0,115	3,535	-0,02	-3
1992	0,064	2,008	-0,03	-5,31
1993	0,127	4,077	-0,04	-5,79
1994	0,136	4,434	-0,03	-5,26
1995	0,204	6,638	-0,04	-5,77
1996	0,247	8,076	-0,03	-4,78
school	0,213	26,14	-0,02	-10
constant	-3,64	-6,1	0,295	1,909

COHORT EFFECT

	Wages coeff.	test t	Unempl. coeff.	test t		Wages coeff.	test t	Unempl. coeff.	test t
1906	-0,15804	-0,237	-0,03944	-0,24	1950	0,20231	0,346	-0,03871	-0,252
1907	-0,19654	-0,304	0,017642	0,108	1951	0,14065	0,241	-0,0534	-0,348
1908	0,00659	0,011	0,001544	0,01	1952	0,13995	0,239	-0,03645	-0,238
1909	0,15284	0,251	-0,09344	-0,59	1953	0,10969	0,188	-0,04077	-0,266
1910	-0,32947	-0,551	-0,12089	-0,78	1954	0,08684	0,149	-0,02647	-0,173
1911	0,28937	0,485	-0,11414	-0,74	1955	0,07856	0,135	-0,03673	-0,24
1912	-0,17759	-0,294	-0,11772	-0,75	1956	0,11953	0,205	-0,02803	-0,183
1913	-0,1774	-0,295	-0,06713	-0,43	1957	0,13727	0,235	-0,00463	-0,03
1914	0,17372	0,291	-0,0179	-0,12	1958	0,06959	0,119	-0,00185	-0,012
1915	-0,10463	-0,177	-0,09678	-0,63	1959	0,05666	0,097	-0,01645	-0,107
1916	0,16816	0,284	-0,12365	-0,8	1960	0,024	0,041	-0,0059	-0,038
1917	-0,10955	-0,184	-0,08006	-0,52	1961	0,0283	0,048	-0,00729	-0,048
1918	0,00773	0,013	-0,01196	-0,08	1962	0,01096	0,019	-0,00871	-0,057
1919	0,35063	0,593	-0,12597	-0,82	1963	0,01086	0,019	0,003981	0,026
1920	0,0705	0,119	-0,0737	-0,48	1964	-0,0682	-0,117	0,008051	0,053
1921	0,20793	0,353	-0,09773	-0,63	1965	-0,1226	-0,21	0,014993	0,098
1922	0,04395	0,074	-0,08395	-0,54	1966	-0,1834	-0,314	0,035033	0,229
1923	0,27863	0,473	-0,05769	-0,38	1967	-0,1765	-0,303	0,017383	0,113
1924	0,1727	0,292	-0,08495	-0,55	1968	-0,2325	-0,398	0,038381	0,251
1925	0,31493	0,535	-0,09709	-0,63	1969	-0,2337	-0,4	0,04356	0,284
1926	0,09141	0,155	-0,05338	-0,35	1970	-0,2507	-0,43	0,038655	0,252
1927	0,21339	0,362	-0,08997	-0,59	1971	-0,2986	-0,512	0,054925	0,359
1928	0,39397	0,668	-0,06455	-0,42	1972	-0,3184	-0,546	0,076925	0,502
1929	0,11148	0,189	-0,07595	-0,49	1973	-0,2665	-0,457	0,047497	0,31
1930	0,275	0,466	-0,09033	-0,59	1974	-0,4154	-0,712	0,054811	0,358
1931	0,31449	0,533	-0,10283	-0,67	1975	-0,3397	-0,582	0,058517	0,382
1932	0,33108	0,562	-0,0697	-0,45	1976	-0,4643	-0,796	0,058003	0,379
1933	0,26474	0,45	-0,08609	-0,56	1977	-0,3665	-0,628	0,074297	0,485
1934	0,30958	0,525	-0,05761	-0,37	1978	-0,4793	-0,821	0,079553	0,519
1935	0,49122	0,833	-0,07993	-0,52	1979	-0,5306	-0,909	0,040969	0,267
1936	0,42756	0,725	-0,08038	-0,52	1980	-0,3281	-0,562	0,068056	0,444
1937	0,4573	0,776	-0,08335	-0,54	1981	-0,5502	-0,942	0,074954	0,489
1938	0,3231	0,548	-0,07435	-0,48	1982	-0,5823	-0,996	0,055087	0,359
1939	0,39683	0,673	-0,08222	-0,53	1983	-0,5562	-0,951	0,083825	0,546
1940	0,49329	0,836	-0,08325	-0,54	1984	-0,6264	-1,07	0,089171	0,581
1941	0,39427	0,666	-0,09748	-0,63	1985	-0,5264	-0,898	0,038556	0,251
1942	0,48367	0,815	-0,07354	-0,48	1986	-0,5465	-0,933	0,054685	0,356
1943	0,36994	0,621	-0,06971	-0,45	1987	-0,5773	-0,983	0,054875	0,357
1944	0,31717	0,531	-0,07392	-0,48	1988	-0,5959	-1,011	0,091702	0,595
1945	0,32276	0,537	-0,06156	-0,39	1989	-0,4916	-0,831	0,049811	0,322
1946	0,12239	0,209	-0,05039	-0,33	1990	-0,6356	-1,066	0,114388	0,737
1947	0,13982	0,239	-0,03445	-0,23	1991	-0,4023	-0,664	0,088959	0,563
1948	0,18957	0,324	-0,05275	-0,34	1992	-0,3888	-0,618	0,159038	0,99
1949	0,10062	0,172	-0,04582	-0,3	1993	-0,4318	-0,678	0,048049	0,297
					1994	0,07221	0,098		
					1995			0,039212	0,196

AGE EFFECT

Age	Wages coeff.	test t	Unempl. coeff.	test t	Age	Wages coeff.	test t	Unempl. coeff.	test t
14					40	0,485221	2,699	-0,0536	-1,274
15	0.0738	0,363	-0,01037	-0,224	41	0,553009	2,983	-0,02678	-0,618
16	0,104703	0,557	0,0004	0,009	42	0,492221	2,723	-0,05656	-1,339
17	0,076378	0,423	0,015268	0,362	43	0,511228	2,802	-0,05502	-1,29
18	0,081952	0,462	0,029292	0,703	44	0,411113	2,235	-0,05935	-1,386
19	0,096344	0,542	0,036274	0,871	45	0,443391	2,444	-0,04797	-1,131
20	0,045226	0,256	0,052493	1,265	46	0,439195	2,401	-0,03799	-0,89
21	0,129521	0,739	0,011378	0,276	47	0,457184	2,474	-0,03419	-0,793
22	0,134173	0,766	-0,00945	-0,229	48	0,57906	3,166	-0,02981	-0,699
23	0,188229	1,072	-0,02179	-0,527	49	0,453413	2,464	-0,02988	-0,696
24	0,23282	1,322	-0,03403	-0,822	50	0,518383	2,848	-0,02353	-0,553
25	0,289674	1,643	-0,03702	-0,893	51	0,642943	3,449	-0,00461	-0,106
26	0,299484	1,694	-0,04888	-1,177	52	0,609417	3,314	0,002577	0,06
27	0,324722	1,835	-0,04301	-1,035	53	0,531197	2,858	0,010633	0,245
28	0,356513	2,015	-0,05612	-1,35	54	0,515618	2,724	0,01908	0,436
29	0,422466	2,37	-0,04183	-1	55	0,497969	2,683	0,017146	0,398
30	0,395089	2,231	-0,05475	-1,316	56	0,553015	2,929	0,01799	0,411
31	0,341452	1,895	-0,02798	-0,664	57	0,519518	2,745	0,021171	0,478
32	0,363459	2,042	-0,05673	-1,359	58	0,339351	1,802	0,018145	0,415
33	0,436659	2,442	-0,05401	-1,289	59	0,642614	3,355	0,020072	0,453
34	0,468216	2,614	-0,05522	-1,316	60	0,435657	2,326	0,011138	0,257
35	0,493105	2,756	-0,05351	-1,277	61	0,572381	3,009	0,012181	0,276
36	0,534592	2,972	-0,05019	-1,192	62	0,529051	2,793	0,021534	0,49
37	0,59549	3,288	-0,04613	-1,089	63	0,598601	3,128	0,008908	0,201
38	0,498348	2,783	-0,05566	-1,327	64	0,552552	2,889	0,015074	0,341
39	0,527665	2,901	-0,05371	-1,263	65	0,65696	3,409	0,010187	0,229