Analysis of the duration of unemployment and outcomes for unemployed persons in the Bolivarian Republic of Venezuela[1]

Josefa Ramoni Perazzi, Giampaolo Orlandoni Merli, Surendra Prasad Sinha, Elizabeth Torres Rivas and Angel Zambrano

Abstract

Although, at first glance, it would seem to be a contradiction in terms, official statistics indicate that both unemployment and economic activity in the Bolivarian Republic of Venezuela are on a steep downward trend. However, a decline in unemployment can, in fact, occur in the midst of an economic recession if a portion of the actual unemployment rate is concealed by employment in the informal sector and/or by a significant number of people abandoning their job search. Using maximum likelihood estimates for homogeneous Markov matrices applied to household sample survey data for the period starting with the first half of 2012 and ending with the second half of 2013, this study analyses the average duration of unemployment and the outcomes for unemployed persons. The results indicate that long-term unemployment prompts some people to abandon their search for a job (whereupon they cease to be a part of the labour market) and others to move into the informal workforce.

Authors

Josefa Ramoni Perazzi is a Professor with the School of Economic, Administrative and Accounting Sciences of the University of Santander, Colombia. j.ramoni@udes.edu.co

Giampaolo Orlandoni Merli is a Professor with the School of Exact, Physical and Natural Sciences of the University of Santander, Colombia. gorlandoni@udes.edu.co

Surendra Prasad Sinha is a Professor Emeritus of the School of Economic and Social Sciences of the University of Los Andes, Bolivarian Republic of Venezuela. sinha32@yahoo.com

Elizabeth Torres Rivas is a Professor with the School of Economic and Social Sciences of the University of Los Andes, Bolivarian Republic of Venezuela. eliza@ula.ve

Angel Zambrano is a Professor with the School of Economic and Social Sciences of the University of Los Andes, Bolivarian Republic of Venezuela. angelz@ula.ve

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I. Introduction

Unemployment is both a national and a personal problem. At the national level, it represents idle production capacity and a failure to make full use of an important resource, thereby excluding a segment of the population from the creation and enjoyment of wealth. Unlike other macroeconomic problems such as inflation and currency depreciation, unemployment is also such a serious personal problem that, as pointed out by Di Tella, MacCulloch and Oswald (2001), some people would be willing to trade off an increase in the unemployment rate for a larger increase in inflation.

Not all types of unemployment warrant the same degree of response or the adoption of targeted policies, however. What is known as "frictional unemployment" is generated by the time lag between the entry of people into the labour market and their entry into specific jobs. This type of unemployment is self-correcting as job-seekers and employers obtain information about the pool of workers and the pool of available jobs. Mechanisms could be introduced, however, to expedite the process by disseminating information more broadly. Structural unemployment, on the other hand, is, as its name suggests, generated by the very structure of the economy and stems from the inappropriateness of some portion of the available supply of human capital, a technological bias that leads to the uneven development of different sectors of the economy or simply the presence of excess labour supply in a depressed economy.

These two types of unemployment not only have different causes; they also differ in terms of their duration and, consequently, their associated costs. Frictional unemployment is very short-lived, whereas structural unemployment is long-lasting. The former leads to a more efficient assignment of workers to jobs that they are suited for and, while it lasts, job-seekers live off their savings or draw unemployment insurance only for a few weeks. The latter depletes all possible sources of funding, jeopardizes the future of job-seekers' families and often pushes them into underemployment or employment in the informal sector or may even lead them to abandon their search for employment altogether.

The objective of this study is to provide answers to a number of different questions that have been posed in isolation from one another in various studies. This approach is based on the premise that the complex dynamic of the labour market is not captured by any one indicator. An effort was therefore made to measure how long, on average, people remain unemployed and, when they leave that category, what their status becomes: employed in the formal sector, employed in the informal sector or no longer a part of the workforce at all. In order to do this, maximum likelihood estimates for Markov transition matrices were applied to household sample survey data on the population between 15 and 60 years of age in 2012-2013 compiled by the National Institute of Statistics (INE) of the Bolivarian Republic of Venezuela. The results indicate that the average time spent looking for work is nearly 11 months and that the figure is higher for women and increases as the job-seeker's level of education rises. It was also found that around two thirds of the unemployed eventually find work —many of them (40%) in the informal sector— while over 30% of them become part of the economically inactive population.

The study is composed of six sections, the first of which is this introduction. The second section outlines the subject under analysis, while the third consists of a brief review of the relevant literature. The fourth and fifth cover the methodology and the results, respectively. Conclusions and recommendations are presented in the final section.

II. Problem statement

According to INE, the reduction in the unemployment rate in the Bolivarian Republic of Venezuela from the highs reached in 2002 (16.2%), 2003 (19.2%) and 2004 (16.6%) was triggered by the large-scale layoff of workers from Petróleos de Venezuela ordered by the government, which led to an 8.4% contraction of gross domestic product (GDP) in a six-month period. Oddly enough, the apparent reduction in unemployment was coupled with a considerable slowdown in the economy, according to the Central Bank of Venezuela. This downturn was so sharp that the economy witnessed negative growth rates, despite the biggest and longest-lasting surge in oil prices ever recorded (see figure 1).

Figure 1
Bolivarian Republic of Venezuela: growth and unemployment rates, 1989-2013
(Percentages)
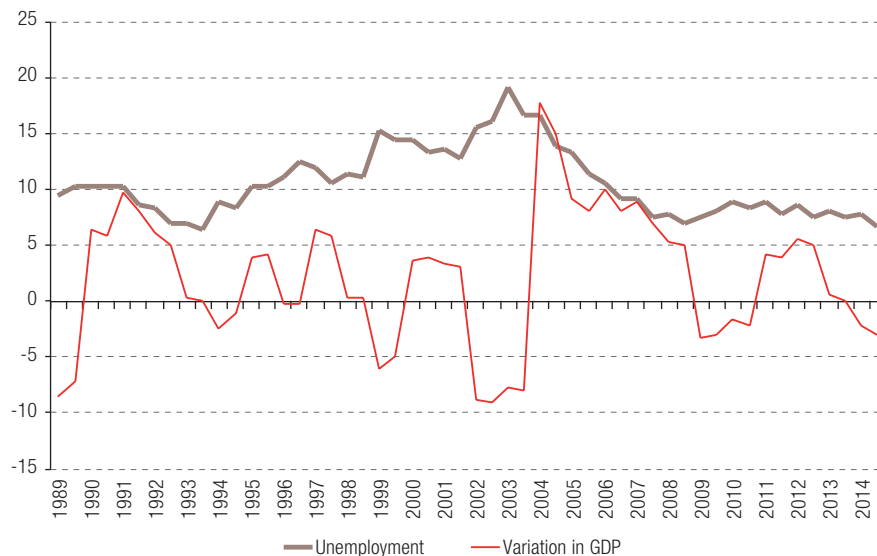
Source: National Institute of Statistics and Central Bank of Venezuela.

There is an evident contradiction in the trends of these two variables, since an expansion in economic activity is generally required in order to cut unemployment. Simultaneous reductions in unemployment and GDP growth can be accounted for in a number of ways, however: (i) the presence of hidden unemployment, which occurs when a large percentage of unsuccessful job-seekers become so discouraged that they stop looking for work and thus are no longer part of the workforce; (ii) the use of the informal sector as an escape valve (when this occurs, people are no longer unemployed but the value of their productive effort is not captured in national accounts); and (iii) a combination of these two phenomena. The aim of this study is to take a closer look at these three possible explanations and to use household survey data from INE for the four six-month periods in 2012-2013 to estimate how long, on average, job-seekers remain unemployed.

III. The literature

The amount of time that a person spends looking for work is influenced both by the overall economic situation in a country and by the characteristics of each worker. Generally speaking, people's level of education is the most influential factor in determining the likelihood of their job search being successful,

although the direction and size of its effect may vary. Theoretically, the more educated a job-seeker is, the more likely he or she is to find work, provided that the structure of the production sector is not biased in favour of less skilled workers. There is evidence, however, that, since people with a higher level of education will have a higher reservation wage, their job search will take longer.

Studies conducted by Sum, Harrington and Simpson (1983), Norman (1984) and Stern (1989) in the United States and by Bjorklund and Eriksson (1996) in the Scandinavian countries, on the other hand, indicate that a higher level of education has a positive impact on the probability of a successful job search and reduces the duration of that search. These effects remain but are weaker when comparing the experiences of persons in their own country and their compatriots who seek work abroad (Bruck-Klingberg and others, 2011). The findings of Eckstein and Wolpin (1995) suggest that the amount of time that people remain unemployed is influenced by their aspirations, which rise in tandem with their level of education. The possession of a higher level of education also has a beneficial impact in terms of the subsequent job stability of first-time job seekers (Bratberg and Nilsen, 1998).

Fan and Kong (2011) and Kong (2012) analysed the factors influencing job searches by university graduates in China based on Cox duration models and Kaplan-Meier survival functions. Their results indicate that a university's reputation and gender are both highly significant factors, with the length of job searches being shorter for women and for graduates of the most prestigious universities. These authors found that the duration of unemployment differs depending on the type of profession, with searches in the fields of engineering and business being shorter than those in the legal field and the sciences. García, Carmona and Gómez (2004) used proportional hazard and log-linear models, while correcting for heterogeneity, to determine the influence exerted by competencies, especially motivation, on the duration of job searches by university graduates in Spain.

These findings do not line up with the results of some other studies, however. Zhou (2003), for example, concluded that a university's reputation has no more than a marginal effect on the probability of a job search being successful in China, while Bradley and Nguyen (2004) found evidence that this factor has a negative impact that outweighs academic performance among first-time job-seekers in England. It is probable, however, that the effect of the quality of an educational institution is intermingled with the effect of the reservation wage, which rises in step with the quality of the education received (Wolpin, 1987).

Bratberg and Nilsen (1998) also found that job searches are shorter for women than for men in Norway, and they attribute this to the fact that women tend to have a lower reservation wage than men. This finding dovetails with that of Bradley and Nguyen (2004) in England, but is at odds with the results obtained by Zhou (2003) and by Min and others (2006), who found that male university graduates had a greater probability of finding work in China and that their job searches were shorter. Unlike the study done by Kong (2012), most of these studies use logit or probability models to analyse the factors that influence job searches.

Some authors go one step further and look at how other variables, in addition to the traditional components of productivity, may influence the duration of unemployment. Cordón and García (2010) used parametric and non-parametric methods to estimate duration models that could be used to gauge the repercussions of the termination of the fisheries agreement between the European Union and Morocco in 1999. Others have studied the effects of leaving one's country (Arif, 1996) and of the deep recession that occurred in the United States in the late 2000s (Reich, 2012). Some authors contend that social programmes for the unemployed lengthen their periods of unemployment and that this type of assistance should therefore be more strictly regulated.

Employment in the informal sector is one of the solutions that many workers resort to after a long, unsuccessful job search. Most studies on the subject cover both the formal and informal labour markets. Calderón (2008) used survival functions to estimate the effectiveness of job search

mechanisms and the duration of unemployment in Mexico. He considered four possible outcomes: formal employment, informal employment, self-employment and withdrawal from the labour force. Other authors have looked at emigration as another possible outcome for the unemployed (Abellán and Fernández, 1997). Using quarterly data for 2005-2007 on unemployed men between 18 and 65 years of age, these authors found that, as the length of a job search grows, formal-sector workers lower their reservation wages and expand their search to include the informal sector, where one out of three of them end up working. Their study suggests that employment agencies and employment advertisements are of equal effectiveness in job searches.

Márquez and Ruiz-Tagle (2004) analysed the effectiveness of various job-search mechanisms in the Bolivarian Republic of Venezuela, as well as other factors that influence selection and outcomes, including individual characteristics and prior work experience. By applying panel data models to household sample surveys for 1994-2002, these authors concluded that, generally speaking, people who have been working in the informal sector prefer to use non-formal methods to look for jobs, whereas people who have been working in the formal sector are more likely to use more formal, structured job-search approaches. Prior status was found to be a significant factor in determining the probability of success of a given job search.

The Economic and Financial Advisory Office of the National Assembly of Venezuela estimates that, in 2003, the mean duration of unemployment in the country was 18.4 months for women and 8.2 months for men and that the duration increased with age (8.7 months for persons under 30 years of age and 24.9 months for persons over 50 years of age) and level of education (16.8 months for university graduates versus 12.2 months for persons with lower levels of education). In the electricity, natural gas and water sector, a job search may last up to 24 months, but it will last just half as long in the manufacturing sector. Ortega and Martínez (2005) found that the duration of a job search may vary from one region to the next, with job searches being lengthier in the states of Nueva Esparta (16.68 months) and Bolívar (11.75 months) and shorter in the states of Guárico (7.99 months) and Lara (7.15 months).

IV. The methodology

1. Database

INE has carried out household sample surveys regularly ever since 1967 in order to gather information on trends in the labour market, the housing situation and the country's overall socioeconomic structure. This information can be used to construct national indicators, especially for employment and housing, that can serve as a basis for decision-making.

Information on individuals for the four six-month periods comprising 2012 and 2013 —the most recent data available at the time that the study began— have been used here. The data were organized on the basis of identifiers for the more than 50,000 persons making up the survey cohorts. The next step was to horizontally pair the variables based on those identification codes in order to construct a panel that could be used to track the changes occurring in the employment status of the sample units over time. In order to lessen the amount of dispersion, only the data on people between the ages of 15 and 60 were used, thereby excluding young people who are not yet of working age and most retirees and pensioners.

During the preparation of the database, a series of irregularities were detected that caused a great deal of information loss. These irregularities included the omission of the income levels of many workers in the cohort corresponding to the second half of 2013, the miscoding of the International

Standard Classification of Occupations (ISCO) categories for workers' occupations (ISCO-88) —even though their job titles and descriptions were available— and distortions of the length of job searches. This made it necessary to adjust the data based on the observed changes in the employment status of the corresponding individuals and in the activities they had carried out in the recent past. There were also many missing pieces of information about the variables needed to determine whether a given job was in the formal or informal sector, what wage and non-wage benefits workers received and what job search strategies were used, among others. As well as making it necessary to adjust the approaches used in this study and to work with a smaller sample, these information gaps give rise to a regrettable loss of information and waste of resources that could be remedied by introducing better data compilation and transcription control mechanisms. Fortunately, some of these variables were not needed for this study, so no observations were lost. Wherever possible, data were imputed from the information provided by other variables. In non-response cases where this could not be done for the variable of interest (less than 7% of all cases), no behaviour pattern could be detected that could be used to associate the variable with any of the covariates.[2] The final panel consisted of 30,270 people (51.75% women and 48.25% men). The first panel had a mean age of 34.12 years and a fairly small proportion of people with a higher education (45.11% had completed no more than the basic cycle of schooling (6 years), 28.77% had completed their secondary education (5 additional years), 6.71% had a technical education and 19.41% had a university education); 49.72% of the members of the cohort were married or had a partner and 39.90% were single; 59.91% were employed, 5.80% were looking for work and the rest were part of the economically inactive population (15.53% were studying, 14.29% took care of the home, 4.15% were retired, lived off investment income, had disabilities or marked "other" and 0.33% did not report any type of activity despite the fact that this group was composed of potentially productive persons with an average age of 26.5 years). Although there was some variation, the structure of the other cohorts was more or less the same.

In order to measure the duration of job searches, the amount of time that unemployed persons had been looking for work at the start of the first half of 2012 was recorded. Then the amount of time that passed for the various cohorts was gradually added until such time as the person was no longer unemployed because he or she found a job or joined the economically inactive population. This latter option was determined to have been chosen on the basis of answers to the questions "When did you last look for work?" and "What did you do last week?". The result was cross-referenced with the amount of time that each person said that he or she had been looking for work (measured by categories). This study thus analyses the paths followed by this group of unemployed persons over the four six-month periods that were covered. It does so by measuring the amount of time that they remained unemployed, identifying their subsequent employment status and examining their job search strategies. The duration of unemployment is defined as the interval between the initial event (the start of a job search as reported by the respondent) and the end point in time (when the person ceases to be unemployed within the period under analysis). In this type of situation, right-hand censorship is inevitable since the event (the end of unemployment) may occur after the study period has ended, as occurred in the case of some people in the last cohort. In these cases, it is advisable to work with percentages and quantiles, as was done here, as well as with life tables and survival analyses. This latter approach will be explored in a forthcoming study.

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[2] Bethlehem, Cobben and Schouten (2011) identified three different non-response mechanisms. The first is a completely random non-response, which is independent of the target variable (Y) and is not due to factors represented by the covariates either. In this case, non-responses are selective and the results are therefore not biased. The second is a random non-response which is attributable to factors related to one or another covariate but is not related to Y. In this case, the bias that it generates can be corrected for by using X-based techniques. The third mechanism is a non-random response, which is related both to Y and to X. In this case, X-based correction mechanisms are not useful.

2. Methodology

Following the basic descriptive examination of the duration of job searches, broken down by gender, level of education, marital status, region and occupation, we analysed the paths followed by people as they moved through the various types of employment situations using homogeneous Markov transition matrices, where X_t —the stage reached in the process at point in time t— represents the employment status of a person at a given point in time: employed, unemployed, student, taking care of the home, no activity or "other" (retired, pensioners, persons with disabilities, persons living off investment income). For the purposes of this study, it is important to identify the unemployed persons who later shift into the economically inactive population and the conditions under which they do so in order to analyse the factors influencing their withdrawal from the workforce (hence the disaggregations mentioned above).

The t-step transition matrix, $P^t_{ij} = Pr\ (x_t=j/x_o=i\ )$ indicates that status i changes to status j in t time periods (six-month periods) with a probability of $P^t_{ij} \geq 0$ and that the current status depends solely on the immediately preceding status. This matrix is homogenous, regular and indivisible, since people can pass from one status to any other status. The probabilities of transition p_{ij} can be calculated from simple percentages or by using the maximum likelihood estimator given by $\widehat{P_{ij}} = n_{ij}/n_i$, where n_{ij} is the sequence of transitions from status i to j and n_j is the number of transitions observed in status i, that is, $\sum_{h=1}^{k} n_{ih}$. While it is expected that the results will be similar, the maximum likelihood estimator is more robust and can be used to estimate the standard error based on $ee_{ij} = \widehat{p_{ij}}/\sqrt{n_{ij}}$ (Ross, 2010).

V.   Results

1.   General analysis

The unemployment rates yielded by the panel data match up with those published by INE: 8.82% and 7.66% in the first and second halves of 2012 and 8.22% and 7.91% in the first and second halves of 2013, respectively. The average length of job searches ranges from 5.05 to 16.69 months and is greater for women (11.34 months) than for men (10.46 months). This is mirrored in the corresponding unemployment rates, which were 8.9% for women and 7.3% for men during the study period (see table 1). As can be seen from the diagrams, the mean duration of job searches was quite similar for men and women and for people with different levels of education.

Table 1
Bolivarian Republic of Venezuela: length of job searches, by gender
and level of education, 2012-2013
(Months)

	General	Gender[a]		Level of education[b]			
		Men (1)	Women (0)	Basic cycle or less (1)	Secondary (2)	Advanced technical (3)	University (4)
Mean	10.87	10.46	11.34	10.64	10.77	11.32	11.37
Standard deviation	5.82	6.06	5.71	5.98	5.89	5.92	5.75
Box diagrams							

Source: Prepared by the authors, on the basis of data from household sample surveys.
Note: The box diagrams represent quartiles of the distribution.
[a]   p(1.0)=0.00.
[b]   p(F)= 0.00; p(1.3)= 0.06; p(1.4) =0.00; p(4.2)= 0.01. Only the statistically significant differences are shown. The codes given in brackets correspond to the comparator groups.

Job searches take longer as the person's level of education rises. This could be accounted for either by the fact that more highly trained people have higher reservation wages (which leads them to prolong their search in order to find a job that meets their expectations) or by the possibility that there is not enough demand in the labour market for the available supply of skilled workers. Accordingly, the duration of university graduates' job searches is significantly greater than it is for workers with a secondary or lower level of education, but is similar to the duration of the job searches of persons with advanced technical training.

The duration of unemployment is also influenced by people's ages: persons between the ages of 21 and 35 remain unemployed for longer than the members of any other age group, while those over 50 take the least amount of time to leave the category of the unemployed, probably because they are more likely to be able to opt for retirement (see table 2). This result is in keeping with the higher unemployment rates for persons of working age and the lower ones for persons over 50 years of age issued by INE. The box diagram in table 2 depicts the homogenous job search durations found for the first three age groups and what would appear to be the more heterogeneous results for persons over 50. This finding warrants a more specific study on the entry of older adults into the workforce.

Table 2
Bolivarian Republic of Venezuela: length of job searches, by age group,
second half of 2012 and second half of 2013
(Months)

	Age group[a]				
	15-20 years (1)	21-35 years (2)	36-50 years (3)	Over 50 years (4)	
Mean	10.82	11.52	10.41	9.50	
Standard deviation	5.85	5.96	5.89	5.54	

Source: Prepared by the authors, on the basis of data from household sample surveys.
Note: The box diagram represents quartiles of the distribution.
[a]   p(F) = 0.00; p(1.2) = 0.001; p(2.3) = p(1.4) = p(2.4) = p(3.4) = 0. Only the statistically significant differences are shown. The codes given in brackets correspond to the comparator groups.

The literature indicates that, generally speaking, people who are married or in a civil union are more likely to accept a job offer sooner and to remain in that job longer than single workers without family responsibilities. No significant differences were found, however, between the different categories of marital status included in this study, although it is true that the shortest job searches were recorded for persons who were married or in civil unions (see table 3).

Table 3
Bolivarian Republic of Venezuela: length of job searches, by marital status, 2012-2013
(Months)

Marital status[a]	Mean	Standard deviation	
Married or in a civil union (1)	10.71	4.91	
Divorced, separated or widowed (2)	10.96	5.95	
Single (3)	11.01	5.91	

Source: Prepared by the authors, on the basis of data from household sample surveys.
Note: The box diagram represents quartiles of the distribution.
[a]   p(F) = 0.08.

The length of job searches was fairly homogeneous in geographic terms. The lowest mean duration of unemployment was in the central northern region, with the shortest job search being in the State of Miranda (8.9 months). The longest searches were in the states of Amazonas and Sucre, where the means were 12.30 and 12.77 months, respectively. The average duration in the other states was around 10 or 11 months (see table 4).

Table 4
Bolivarian Republic of Venezuela: length of job searches, by region, 2012-2013
(Months)

Region[a]	Mean	Standard deviation
Central northern (1)	10.05	5.77
Western (2)	10.56	5.94
Plains (3)	10.75	6.13
Rest of country (4)	11.48	5.73

Source: Prepared by the authors, on the basis of data from household sample surveys.
Note: The box diagram represents quartiles of the distribution.
[a] $p(F) = 0.00$; $p(4.2) = 0.00$; $p(4.3) = 0.003$. Only the statistically significant differences are shown. The codes given in brackets correspond to the comparator groups.

As stated earlier, the classifications of respondents' activities in the original database were riddled with errors and omissions. Some of the missing information could be recovered with the help of other variables. In table 5, it can be seen that the mean length of a job search for males in the legal field was 9.18 months, whereas it was nearly 12 months for women. In unclassified, military and diplomatic occupations, among others, the mean length of a job search was under 10 months for men, and this was also true for persons in transport and communications and in activities related to social assistance and the arts. The duration of unemployment for male health professionals (doctors, dentists, bioanalysts and related occupations) was as long as 13.5 months, but women's job searches in that field were the shortest of any of the categories for female workers, with no significant differences between the job search durations for the two sexes being recorded (see table 5).

Table 5
Bolivarian Republic of Venezuela: length of job searches, by occupational category
(ISCO-88), 2012-2013
(Months)

Occupational group (ISCO-88)	Men[a]		Women[b]	
	Mean	Standard deviation	Mean	Standard deviation
Lawyers, judges and related professions	9.18	5.55	11.69	6.97
Other occupations	9.67	4.68	11.83	6.67
Drivers, transportation workers and related professions	9.72	6.01	10.94	5.77
Occupations in the field of social assistance and the arts	9.84	6.55	11.48	6.20
Miscellaneous professions	10.30	5.74	12.10	5.29
Farming, livestock and forestry	10.42	6.27	10.63	5.92
Secretaries and related associate professionals	10.47	6.26	11.67	5.99
Directors, coordinators, administrators	10.59	6.43	11.58	5.40
Sales, vending and related professions	10.96	6.17	12.41	5.85
Service sector workers	11.09	5.95	11.74	6.02
Craftworkers, factory operators	11.20	6.34	12.72	5.52
Teachers and instructors	11.38	5.76	12.67	5.57
Auxiliary health technicians	11.97	5.70	11.21	6.10
Social scientists, analysts	12.00	6.19	11.06	5.78
Mining, quarrying and related occupations	12.41	6.32	13.40	5.37
Health professionals	13.50	7.00	10.44	4.88

Source: Prepared by the authors, on the basis of data from household sample surveys.
[a] $p(F) = 0.17$.
[b] $p(F) = 0.33$.

The duration of periods of unemployment sheds some light on the nature of the problem and its causes. Job searches that take nearly a year or more, as in this case, are a sign of long-term unemployment. This is associated with structural unemployment, which stems from the existence of insufficient labour demand as a result of a contraction of the production apparatus. This type of unemployment occasions economic, family-related and social problems. From an economic standpoint, it entails a resounding failure to make use of productive resources, followed by an inefficient allocation of resources (since workers end up accepting jobs for which they are overqualified), a deterrent to further training due to the loss of income, both during the period of unemployment and in the future as a consequence of the effects of worker obsolescence. In addition, the longer people remain unemployed, the greater the likelihood that they will give up and stop looking for work, thereby increasing the rate of hidden unemployment. In terms of family dynamics, studies have traced a connection between unemployment and workers' loss of self-confidence, a greater likelihood of stress-related illnesses and consequently a lower life expectancy, along with a lower level of education for the children of unemployed persons and a greater probability that they will have to repeat grades in school and will have lower income prospects for the future (Dao and Loungani, 2010). Viewed from a social perspective, since long-term unemployment tends to marginalize workers who do not succeed in positioning themselves in the market, these people end up moving into the informal employment market or, worse yet, engaging in crime, prostitution or social conflicts.

In the two reference years, 36.5% of the unemployed persons in the sample were looking for work for over a year, and 11.9% of them were unemployed for over a year and a half. The information provided by household sample surveys does not show what percentage of unemployed persons have access to some sort of assistance, such as unemployment insurance, which under the Employment Benefits Act of 1985 (last amended in 2005), provides workers with the equivalent of 60% of their usual monthly salary for a period of five months. There is no unemployment insurance coverage for people who are seeking work for the first time, however, since this insurance is financed by prior worker contributions.

First-time job seekers have to overcome the obstacle posed by their lack of work experience. In Spain and Switzerland, companies are offered tax and social security incentives to hire young people who do not have prior experience, and the Organization for Economic Cooperation and Development (OECD) is advocating the adoption of this kind of policy by all its member countries. In Latin America, Mexico and Uruguay have taken steps in this direction. The third annual report of the international Cuatrecasas institute (Cuatrecasas, 2013) outlines the various approaches that have been taken around the world to help young people gain work experience and to provide apprenticeship and job training contracts. The International Labour Organization (ILO) (ILO, 2005) has also warned that protracted periods of unemployment among young people can lower their future income levels and jeopardize their level of competitiveness going forward.

In the Bolivarian Republic of Venezuela, the youth unemployment rate (15 to 24 years of age) is 17.14% (18.79% for girls and women and 15.92% for boys and men in those age groups). It is not only the younger members of this age group who are first-time job seekers, however, as the data indicate that the average age of people looking for work for the first time is 26.3 years in the case of women and 23.4 years for men. The average amount of time spent being unemployed ranges from 7.54 to 17.48 months and follows a pattern similar to the one described previously, since the duration of unemployment is higher for women and for more highly educated job seekers (see table 6).

Generally speaking, the data indicate that no group or sector stood out in terms of its members' ability to find work quickly, despite their differences in age, gender, level of education, occupation and region. This suggests that the prevalence of long-term unemployment is the reflection of a structural problem stemming from an overall shrinkage of the country's economy that is having a similar impact on all socioeconomic strata. The longer a job search takes, the greater the likelihood that job seekers

will abandon their search, which is why it is important to track the path followed by unemployed persons as they transition from one type of employment status to another.

Table 6
Bolivarian Republic of Venezuela: length of job searches, by gender and level
of education of first-time job seekers, 2012-2013
(Months)

	General	Gender[a]		Level of education[b]			
		Men (1)	Women (0)	Basic cycle or less (1)	Secondary (2)	Advanced technical (3)	University (4)
Mean	12.51	11.39	12.79	11.09	11.07	12.58	12.02
Standard deviation	4.97	4.85	4.89	4.79	4.8	4.61	4.75
Box diagrams							

Source: Prepared by the authors, on the basis of data from household sample surveys.
Note: The box diagrams represent quartiles of the distribution.

[a] p(F)=0.02; (b) p(F) =0.03; p(1.3)=0.03; p(1.4)=0.02; p(2.3)=0.03; p(2.4)=0.02. Only the statistically significant differences are shown. The codes given in brackets correspond to the comparator groups.

2. Transitions in employment status

As noted earlier, a downward trend in unemployment during economic recessions can be accounted for, in part, by the fact that some job seekers eventually become discouraged and stop looking for work. This phenomenon is known as the "discouraged worker effect". While 65.11% of the unemployed found work, the other 35% gave up. Some of the people in this latter group (12.75%) went back to school in order to make themselves more competitive and improve their future job prospects; nearly 16% decided to devote themselves to domestic tasks in the home and 5.3% chose neither option and remained idle. A very small percentage (1.19%) continued their search or moved into other categories, such as persons with disabilities or persons who chose to take early retirement or who reached their statutory retirement age (see table 7).

Table 7
Bolivarian Republic of Venezuela: outcomes for unemployed workers, 2012-2013
(Percentages)

Number of periods	Found work	Stopped searching for work			
		Returned to school	Stayed at home	Did not have a job and were not looking for one	Pursuing their job search/ Other
1	79.76	94.19	89.88	86.87	-
2	19.08	5.23	9.08	11.45	-
3	1.16	0.58	1.04	1.68	-
Total	65.11	12.75	15.65	5.30	1.19

Source: Prepared by the authors, on the basis of data from household sample surveys.

The entry of potential workers into the economically inactive population not only translates into an underutilization of the available labour supply but also leads to an underestimation of the actual level of unemployment that delays or distorts the design and adoption of measures for addressing the problem. Workers know that it is not easy to find a job. As shown in figure 2, more than 38% of the unemployed persons in the sample contended that they were tired of looking for work and that they

believed that there were no employment opportunities or no appropriate vacancies. In all, 10.3% said that they were unable to work because of problems with their credit ratings or with obtaining licenses or because they had no support in the home, while another 11.3% said that they were waiting for a business or job that had already been promised to them. The remainder either had no need to work, were unable to do so or did not work for some unspecified reason. Persons who returned to school were not included in the totals.

Figure 2
Bolivarian Republic of Venezuela: reasons for not looking for work, 2012-2013
*(Percentages)*
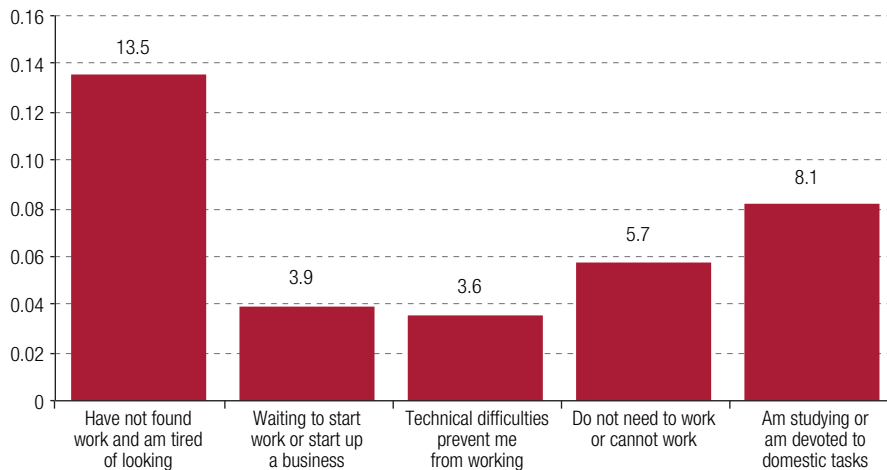
Source: Prepared by the authors, on the basis of data from household sample surveys.

A protracted period of unemployment may not only induce a person to give up a job search but may also result in an inefficient allocation of labour. The available information does not make it possible to determine how good a fit there is between workers' skills and the jobs that they are holding, but a review of some of the variables included in the summary do provide some idea of the degree of job stability involved: 67.43% of the workers who lost their jobs for reasons other than retirement, disability or personal circumstances had been employed in short-term jobs. Ramoni (2012) has drawn attention to the increasing prevalence and impact of part-time work in the Bolivarian Republic of Venezuela. The panel data for this study indicate that the people in the sample were working 30.6 hours per week, on average, while 11.1% of the unemployed persons who succeeded in finding a job were working 20 hours per week or less.

Informality is another consequence of structural unemployment and lengthy job searches. Ramoni, Orlandoni and Castillo (2010) have estimated that the informal sector in the Bolivarian Republic of Venezuela accounted for between 20% and 30% of non-petroleum GDP in 2007 and employed nearly half of all workers. According to INE statistics, 41.5% of all the workers were employed in the informal sector during the period under study, which is quite close to the percentage calculated on the basis of the data used in this study (42.26% in the first half of 2012 and 41.36% in the second half of 2013); 47.86% of the unemployed who reported that they had found a job during the reference period were employed in the informal sector and 38.82% were employed in the formal economy (see figure 3). The fact that about half of these workers were employed in the informal sector and that a sizeable percentage of the unemployed abandoned their job search helps to explain how unemployment levels dropped at the same time that GDP was shrinking.

Figure 3
Bolivarian Republic of Venezuela: formal and informal sector employment
of workers seeking jobs in 2012-2013
(Percentages)

Unclassified
(13.35)

Informal
(47.86)

Formal
(38.82)
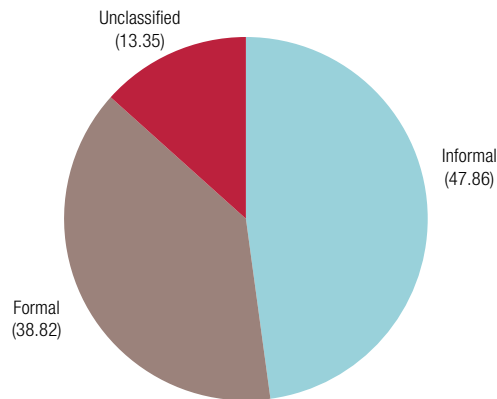
Source: Prepared by the authors, on the basis of data from household sample surveys.

Employment status is a random variable associated with a set of six possible situations (employed, unemployed, student, household, other, none) that has a given probability of occurrence that defines a discrete-time Markov chain. The labour system starts from an initial stage at the beginning of the first half of 2012. The individuals in the sample then transit from one stage to another recurrently until they arrive at a final limiting distribution or stationary stage distribution in which the probabilities of remaining at that stage stabilize. Since the different stages in the system are recurrent, there is always the possibility that there will be movement between one and another. This gives rise to the probabilities that define the transition matrix for the labour system under study.

The Markov transition matrices represent the probability of transition from one status to another or the percentage of people who will retain the same status as before. Table 8 shows the transition probabilities for shifts between the first and last six-month periods covered by the study. The overview of the different transition matrices for the different periods provided in table A1.1 in the annex shows that they have quite similar structures, which makes it possible to estimate the probability of their duration over time. In this transition from one period to the next, what stands out is the increasing probability that people will remain unemployed, that students will enter the labour force —whether as employed persons or as unemployed job seekers— and that members of the economically inactive population will transition into the unemployed segment of the population. The increasing number of students who are entering the labour force may be related to the prevalence of low wage levels, which makes it necessary for all the able members of a household to contribute to its upkeep. The transition probabilities estimated using the maximum likelihood methodology are very similar to the estimates arrived at empirically on the basis of simple percentages by researchers who reported their results in an earlier working paper.

The data shown in table 8 indicate that there was a 13.86% probability, with a standard deviation of just half a point, of remaining unemployed during the period beginning with the first half of 2012 and ending with the last half of 2013, while the probability of an unemployed person becoming employed during that period ranged from 58.7% to 62.5%. The probability of a person abandoning their job search and becoming part of the economically inactive population was between 0.06% and 12.08%, depending on what segment of the inactive population the person would belong in. The probability of a person who is employed becoming unemployed during the same period was low (4.90%) and exhibited very little variability. Diagram A1.1 (see the annex) provides a schematic representation of this

transition based on the results obtained in this study. Since this is a regular, indivisible and acyclical matrix, a transition to or from any employment status to any other is possible, but only the most likely shifts are shown here.

Table 8
Bolivarian Republic of Venezuela: employment transition matrix, 2012-2013
(Percentages)

Period 4 / Period 1	Employed	Unemployed	Student	Household	Other	None
Employed	73.41 (0.6)	4.90 (0.2)	8.39 (0.3)	9.90 (0.3)	3.23 (0.2)	0.17 (0.1)
Unemployed	60.60 (1.9)	13.86 (0.5)	9.34 (0.8)	12.08 (0.9)	4.07 (0.5)	0.06 (0.1)
Student	43.19 (1.3)	5.22 (0.4)	36.25 (0.6)	9.79 (0.6)	5.16 (0.4)	0.38 (0.1)
Household	45.59 (1.2)	4.93 (0.4)	8.42 (0.5)	36.85 (0.6)	3.84 (0.3)	0.37 (0.1)
Other	46.72 (2.1)	5.11 (0.6)	9.81 (0.9)	12.18 (1.0)	26.36 (0.5)	0.41 (0.2)
None	43.12 (8.8)	12.84 (3.1)	12.84 (4.4)	23.85 (5.0)	5.50 (2.8)	1.83 (0.0)
Stationary vector	62.82	5.51	12.86	13.96	4.62	0.24

Source: Prepared by the authors, on the basis of data from household sample surveys.
Note: The standard error is shown in parentheses.

The stationary vector obtained from the stochastic matrix is not a projection of what may happen in the future but rather a trend indicator for the distribution based on the behaviour of the variable in question, assuming that the conditions prevailing at the time that the study was conducted remain constant. The process quickly converges towards the stationary probability vector shown in the last row of table 8, which gives the long-term employment profile. This represents the limiting distribution of the system and is independent of its initial state.

The estimated values for the stationary distribution are, in part, similar to those obtained by Márquez and Ruiz-Tagle (2004) for the Bolivarian Republic of Venezuela in 1994-2002. While that study found that the probability of being unemployed was 4.8% (below the 5.51% vector of this study), the probability of remaining employed was much greater (84.9% versus 62.82%). The main difference between these studies' findings is that, in the former study, the probability of remaining in the economically inactive population was only 10.3% —far below the 31.67%[3] estimate of the present study.

3. Job search mechanisms

Workers and employers use various strategies for arriving at the best job/worker match in the least possible amount of time. There is, to some extent, a trade-off between the amount of time spent looking for work and the quality of the job, and this is influenced by factors such as the worker's reservation wage and his or her ability to cover living expenses while looking for work. Unemployment insurance schemes, which vary from country to country, play a fundamental role in this respect. In the Bolivarian Republic of Venezuela, unemployment insurance coverage is limited to a period of five months.[4]

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[3] This is the value yielded by adding up the probabilities for the different categories of economic inactivity: 12.86 + 13.96 + 4.62 + 0.24.

[4] In the United States, an unemployed person receives up to 50% of his or her salary for 33 weeks. In some European countries, unemployment insurance coverage lasts for as long as three years. The duration of coverage has a direct impact on the amount of time spent looking for work and, consequently, on the unemployment rate (Brunner and Calarelli, 2004). For a comparative study of unemployment assistance programmes in European countries, see Observatorio de Relaciones Laborales (2012).

Márquez and Ruiz-Tagle (2004) reported that Venezuelan workers, and especially those in the informal sector, usually do not seek out the services of employment agencies, even though those services —together with prior work experience— can be a decisive factor in finding employment. An analysis of the steps taken by unemployed persons in order to find work shows that this has not changed: over 65% of the people in the sample relied on informal methods (i.e. personal contacts) when looking for a job, while fewer than 4% went to employment agencies (see table 9). The available data do not indicate whether a given used more than one job search method at a time.

Table 9
Bolivarian Republic of Venezuela: job search mechanisms and durations, 2012-2013
(Percentages and months)

Search mechanism	Users (%)	Mean duration of job search (months)	
Employment agencies (1)	3.97	8.72	
Placed or answered an advertisement or filled out an application (2)	18.66	12.47	
Personal contact (3)	65.30	10.50	
Other (4)	12.08	12.24	
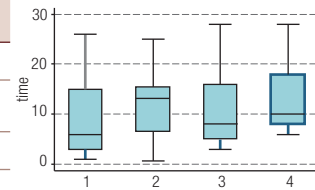
Source: Prepared by the authors, on the basis of data from household sample surveys.
Note: The box diagram represents quartiles of the distribution.

[a]   p(F) = 0.03; p(1.2) = p(1.3) = p(1.4) =0.03; p(2.3) = 0.03; p(3.4) = 0.04. Only the statistically significant differences are shown. The codes given in brackets correspond to the comparator groups.

The data shown in table 9 indicate that people who used employment agencies achieved their objective much more quickly (8.72 months) than those who relied on friends and other contacts (10.5 months). People who answered or placed advertisements and those who used other strategies (taking out loans, applying for permits, purchasing inputs, etc.) took over a year to do so. It is not known whether so few people make use of employment agencies because there are not many such companies in the country or because their service conditions are not very attractive. The literature on the subject indicates that private employment agencies enable people to obtain higher quality jobs, although not necessarily more quickly, and achieve a more efficient allocation of resources. Some studies suggest that public employment agencies are more effective but less efficient (Gregg and Wadsworth, 1996; Addison and Portugal, 2002). In any event, strengthening the network of employment agencies may be a way to shorten the duration of unemployment and mitigate the discouraged-worker effect.

VI. Conclusions and recommendations

An analysis of the problem of unemployment should consider not only the rate of unemployment but also the amount of time that people remain unemployed and, when they leave that category, what their status becomes. Panel data for the four six-month periods covered by household sample surveys conducted in 2012 and 2013 were used to study this problem in Bolivarian Republic of Venezuela.

These data indicate that the mean duration of a job search is approximately 11 months, with slight differences being observed that correspond to a number of socioeconomic factors (longer job searches for women, more highly educated people and persons in certain regions or professional or vocational fields). Widespread long-term unemployment which does not exhibit any particular features that would afford certain advantages to one group over another points to the presence of structural problems in the economy that affect all sectors equally.

Given the fact that people are pursuing lengthy job searches during what official statistics show to be a recession, an explanation for the declining unemployment rate (which had fallen below 8% by the end of the period under analysis) is called for, and the household sample survey results provide one. Over half of the unemployed persons covered by the survey ended up finding work, while the rest withdrew from the labour force and went back to school in an effort to become more competitive or decided to devote their time to caring for the home or engaging in other types of activities. Nearly 48% of the people who did find work ended up being employed in the informal sector. The quality of the jobs obtained by the rest of the people who became employed is unknown. However, information from the sample surveys suggests that a large percentage of the workers have fixed-term contracts or are working part-time. The most commonly used job search mechanisms are not the most suitable ones either, since people usually rely on personal contacts rather than making use of more formal methods.

Given that the transition matrices reflect an upward trend in unemployment, if the economy's structural problems remain in place, the probability that a worker will be employed in the future is just under 63%, while the probability that a worker will become part of the economically inactive population tops 30%. For the most part, when members of the inactive population decide to rejoin the labour force, they are initially categorized as unemployed. Our findings indicate that the downturn in the unemployment rate should not be interpreted as meaning that the problem is on its way to being resolved but is instead a reflection of the fact that many unsuccessful job seekers are becoming so discouraged that they are withdrawing from the workforce altogether and that many of those who are employed are working in the informal sector.

The work done to prepare the database showed up the presence of a series of gaps or flaws in the compilation and transcription of the survey data. These shortcomings give rise to a loss of information and a waste of valuable resources and point up the need for corrective measures to ensure that full advantage can be taken of the data provided by household sample surveys. They also indicate that INE should restructure its database in order to provide a more complete panel. Extending the analysis to cover other periods would no doubt provide informative results. It would also be of interest to use more refined statistical methods to determine how many older workers are re-entering the labour market, how long job searches are taking, and how much mobility there is between the formal and informal sectors and between different types of employment status.

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Annex A1

Table A1.1
Bolivarian Republic of Venezuela: employment transition matrices for each period
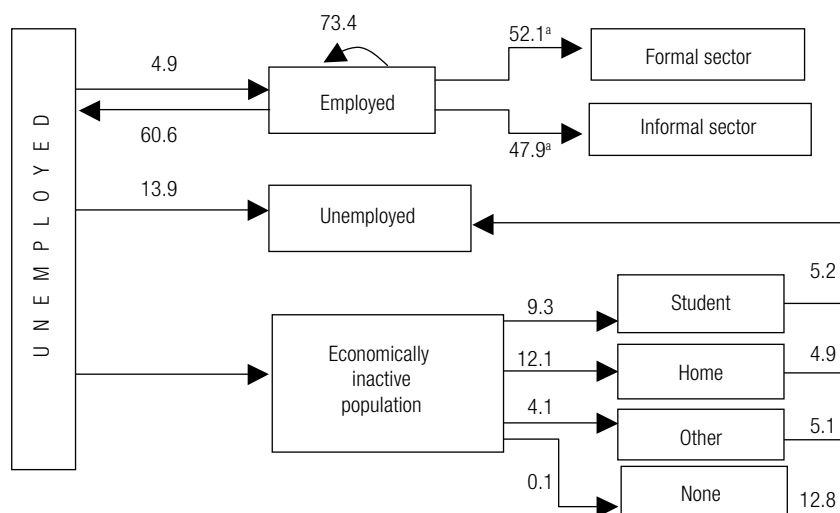*(Percentages)*

Period 1→2	Employed	Unemployed	Student	Home	Other	None
Employed	74.05	4.35	9.06	9.34↓	3.07	0.14
Unemployed	54.70	16.04↑	11.10	12.26	5.50	0.40
Student	37.57↑	4.44↑	44.64	8.69	4.18	0.49
Home	42.15	4.53↑	8.95	40.39	3.74	0.23
Other	42.42	4.79↑	10.22	12.00	30.41	0.16
None	37.61	0.92↑	20.18	27.52↓	6.42	7. 34↓
Period 2→3						
Employed	73.93	4.75	8.83	9.22↓	3.04	0.23
Unemployed	53.85	16.23↑	10.56	13.82	5.02	0.52
Student	37.68↑	4.63↑	44.42	8.89	4.00	0.38
Home	40.44	4.89↑	9.44	41.03	3.87	0.33
Other	39.63	6.25↑	11.20	13.930	28.79	0.22
None	49.33	9.33↑	21.33	9.33↓	6.67	4.00↓
Period 3→4						
Employed	75.44	4.54	7.60	9.21↓	3.01	0.21
Unemployed	56.04	17.46↑	9.28	12.03	5.01	0.18
Student	39.21↑	5.07↑	41.69	9.42	4.27	0.34
Home	41.57	5.16↑	8.43	40.87	3.80	0.16
Other	42.30	6.69↑	9.78	11.29	29.42	0.50
None	53.41	7.95↑	20.45	14.77↓	1.14	2.27↓

Source: Prepared by the authors, on the basis of data from household sample surveys.
Note: The arrows indicate trends in probabilities.

Diagram A1.1
Bolivarian Republic of Venezuela: probabilities of transitions between employment categories
(Percentages)

Source: Prepared by the authors, on the basis of data from household sample surveys.

[a] Percentages of the subtotal for each group.