SOME STYLIZED FACTS OF SPANISH UNEMPLOYMENT*

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A B S T R A C T

In this paper we analyze quantitatively the importance for Spanish unemployment in the period 1980-1995 of the increase in the female labor force, the rapid destruction of agricultural employment, the return of immigrants and the high fraction of unemployed individuals who are long-term unemployed. The increase in the female labor force, the decrease in agricultural employment and long term unemployment have a significant effect on the unemployment rate, and so the impact of the return of the immigrants in the last part of the 1970s. We study whether family support and level of education affect the rate of long term unemployment and we find little support for this conjecture.

KEYWORDS: Long-Term Unemployment; Female Labor Force; Migration.

1. INTRODUCTION

The persistence of unemployment has become one of the major problems in most industrialized countries, but especially in Spain that has suffered an increase of more than 20 percent points since the first oil crisis. Until 1977 the Spanish unemployment rate was low and below the OECD average (4.3 and 5.1 percent points, respectively, in 1975). After a weak recovery in the late 1980s, unemployment has been growing again affecting more than 23 percent points of the labor force in the first half of the 1990s, outstripping its previous 1985 peak. The persistence of an unemployment rate above 20 percent during more than a decade arises then as a main feature of the Spanish economy and, although some progress has been made, it still constitutes a challenge for economic theory researchers.

During the period 1970-1995 Spain has experienced a net destruction of 285.75 thousand jobs whereas the labor force has increased in 3164.5 thousand workers. Only the years 1970-1973 and 1986-1991 were characterized by a net creation of employment, but the persistent increase of the labor force made unemployment to grow during the 1970s, and meant only a mild employment recovery in the late 1980s. Another striking characteristic of Spanish unemployment is the average length of the unemployment spell: each year during the period 1986-1995 more than half of the unemployed population have been searching for a job during more than a year. During that decade, the Spanish share of long-term unemployment in total unemployment is, on average, three points higher than the European average.

Since the evolution of unemployment is driven by the difference between the labor force and its level of occupation, we will first analyze the evolution of these two factors and their components, and measure how much of the reported unemployment is due to each of them separately. With respect to the labor force contribution to unemployment, we will measure the effects of two features often addressed as responsible for enhancing the effects of employment destruction, and so for mitigating the positive effect of job creation: the increasing female participation and massive return of Spanish immigrants in the late 70s.

The female participation rate has grown about 12 percent points since 1973. Taking into account that in 1985 this rate was still around its 1973 level, 33.4 percent points, the share of the female population in the labor force has been risen very quickly in the last decade. The "big push" took place from 1986 to 1988, growing more than 3 percent points in 1987. We find that the increase in the female participation in the labor market has contributed, on average, one percent point to the unemployment rate each year since 1987.

It is commonly accepted that the low unemployment rate that characterized the Spanish economy during the early 1970s did not reflect the true unemployment rate since it did not take into account the high emigration rates registered during that period; moreover, that the rapid increase in the unemployment rate since 1977 was in part due to the affluence of returned emigrants attracted by the political transition to democracy and encouraged by less favorable economic conditions in the rest of Western Europe. Accordingly to this extended believe, we show that recorded migration could have a sizable effect on the Spanish unemployment performance during the last part of the 1970s.

With respect to the level of occupation, we will explore what characteristics of sectorial employment made its aggregate performance to be so poor and focus on the agricultural sector contribution to unemployment. It is well documented (see for example Marimon and Zilibotti 1996) that the traditional agricultural sector has been a burden for the Spanish economic expansion. In 1980 agricultural employment still accounted for 19 percent of total employment, despite the intensive job destruction that took place in this sector during the 70s. In 1993 it still doubles the OECD average. We find that the destruction of employment in agriculture has contributed, on average, one percent point to the unemployment increase each year during the periods 1976-1980 and 1987-1995.

Finally, there is another feature of the Spanish unemployment that deserves special attention since the evidence suggests that there might be a feedback effect on the unemployment rate. Long-term unemployment can have dramatic effects on the quality of the labor force: skills and work habits depreciate very quickly, so long-term unemployed individuals find it harder to get a job if compared with those that have been unemployed during a shorter period. We find that the gains from eroding long-term unemployment in terms of the unemployed population share would have been at least 2.5 percent points during the period 1987-1995, of course the gains in terms of social welfare can be much more significative. Given the importance of long-term unemployment and its policy implications, we explore the role of family insurance and lack of human capital as potential explanations for the lengthening of the average unemployment duration. We find that the effects of these two factors go in the desired direction but with a relatively small significance; on average, around one percent of the unemployment rate during the period 1987-1995 is due to non-household head "attitude" in the labor market, similar results are obtained when we measure the effect of non-primary school unemployed workers.

Concerning previous work, Novales and Mateos (1990) and Bover and Arellano (1995) analyze the response of female labor market participation during the eighties. The former focus on the response to employment fluctuations and find that it is procyclical and significative. The latter include education and fertility

as endogenous variables and find that the dominant forces governing the evolution of the participation of women aged 25 to 44 were structural factors that shifted female earnings potential. To our knowledge, there is no previous work concerned with the labor market implications of returned emigrants. Marimon and Zilibotti (1996) focus on the sectorial composition of production and employment; they analyze the performance of ten European countries for the period 1974-1992 and, among other things, show that the process of employment destruction in agriculture is especially severe in Spain and its cumulative effect could account for about 8 percent points of the Spanish unemployment rate in 1992. With respect to the length of the unemployment duration, Andrés et al. (1989) find that the major part of the rise in Spanish unemployment during the period 1976-88 is due to the increase in the length of the average unemployment spell rather than to the increase in the rate of unemployment entry. Ahn and Ugidos (1995) focus on the effect of unemployment benefits and family characteristics on unemployment duration, their analysis suggests that generous family support may be another contributing factor to the high unemployment rate in Spain.

Our main focus is on providing a measure of how the different factors have contributed to the evolution of unemployment rates in Spain. Special attention is given to the problem of long-term unemployment for which we develope a reduced form model, and calibrate it for the Spanish economy. Concerning cross country comparisons, we use data from the OECD Employment Survey and Labor Force Statics; otherwise, data from EPA (Spanish Labor Force Survey) are considered. Female labor force and migration flows are studied in section 2. Section 3 focuses on the role played by agriculture. Section 4 points out the importance of long-term unemployment, addressing family ties and differences in education as potential explanations for the lengthening of the unemployment spell. Section 5 concludes.

2. EVOLUTION OF THE LABOR FORCE

In this section we analyze two features of the Spanish Labor Force that have often been used as important sources, from the supply side, of the high unemployment rates in Spain: the increasing female participation and the increasing inflow of Spanish workers that had migrated abroad during the dictatorship. We find that around one percent point of the increase in the annual unemployment rate since the mid-80s is due to the increase in the female participation rate but, contrary to the above believe, that the contribution of the returned emigrants is negligible.

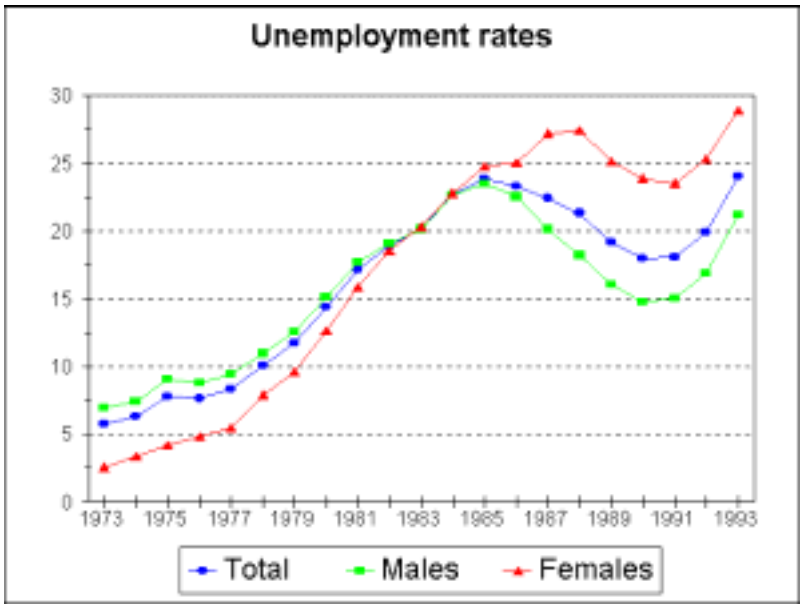

Figure 2.1:

2.1. The Female Participation in the Labor Force and the Unemployment Rate

The steady rise in the female participation rate, especially during the 80s, has often lead to the believe that the persistence of high unemployment in Spain is in part due to the fact that an increasing number of women are searching for a job (see Figure 2.1). Although this feature has played an important role in the evolution of Spanish unemployment, we cannot use this argument to explain the huge unemployment rate differential that Spain keeps with other European countries, since countries with similar or even larger growth rates in female participation have kept much lower unemployment rates. For instance, both Spain and Italy had participation rates around 44 percent in 1993, with an increase of 9 and 15 points, respectively, with respect to 1973, but the Spanish unemployment rate stays on average 10 points higher than the Italian rate since the early 80s. Our aim in this paper is not to analyze the determinants of the different Spanish performance in the labor market, but to provide a measure of how much the increasing female participation has contributed to Spanish unemployment.

During the first half of the 80s, despite the unfavorable economic conditions that led to a slightly decline in the global labor force participation rate, female participation keeps growing around a point per year. This steady increase goes on until 1993 except for the years 1987 and 1988 where the rise in female participation is, respectively, of 3 and 2 points. Over the whole period the global

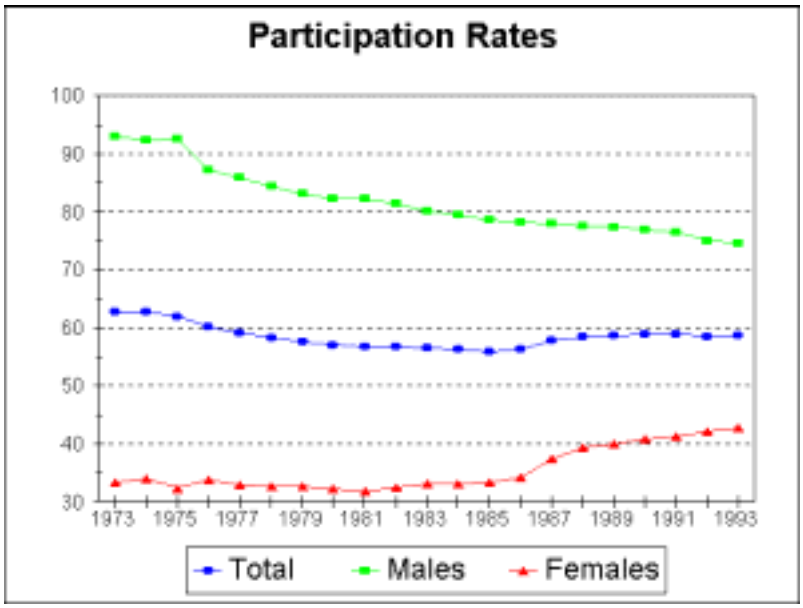

Figure 2.2:

participation rate stays, on average, around its initial 60 percent level (see Figure 2.2). This suggests that men and women have behaved very differently over the cycle and so that an important fraction of the increasing female labor force participation might be due to non-cyclical factors. Indeed, Bover and Arellano (1995) find that for women aged 25 to 44, the dominant forces governing the evolution of the participation rate during the 80s were structural factors that shifted female earnings potential [1]. Novales and Mateos (1990) also suggest that part of the increase in the female participation may be due to an upward shift in expected wages since the fraction of women with a high school or university degree doubled from 1976 to 1986, but they focus on the response of women's participation to employment fluctuations and find that this response is also significative and pro-cyclical.

To measure the effect of the increase in the female participation on the unemployment rate we decompose the unemployment rate as the sum of three factors:

$$u_t - u_{t-1} = -\frac{O_t - O_{t-1}}{A_t} + (1 - u_{t-1})\frac{A_t^M - A_{t-1}^M}{A_t} + (1 - u_{t-1})\frac{A_t^F - A_{t-1}^F}{A_t}. \quad (2.1)$$

[1] They show from an empirical time series participation equation that the increase of female participation during the 80s was mainly due to the increase in university education and to the decrease in birth rates, both features being endogenous responses to the increase in the demand for skilled female workers

where u_t denotes the unemployment rate at period t, O_t stands for the level of occupation, A_t denotes the total labor force, A_t^M and A_t^F denote the male and the female labor force, respectively. The first factor on the right hand side of expression (2.1) measures the fraction of the variation in the unemployment rate that is due to changes in the employment level, the other two factors represent the fraction of this variation that can be explained by changes in the male and female labor forces, respectively. The charts corresponding to the variation in the unemployment rate and its decomposition in these three factors are plotted in Figure 2.3 for the period 1973-1993. Note that in the employment chart positive numbers represent periods of employment destruction, whereas negative ones stand for periods of employment creation. Inspection of Figure 2.3 reveals that, except for a few years, the fluctuations in the unemployment rate are dominated by fluctuations in the employment level. It is also clear that the improvement in the unemployment rates during the second half of the 80s is not as good as the evolution of the employment figures would predict, since over that period is when the female labor force increases the most. For instance, from 1986 to 1987 the unemployment rate falls 0.87 points to 21.2 percent, but if employment had not increased over that period, the unemployment rate would have increased more than 2.5 percent points due to the increase in female participation. We can conclude that, since 1980, the rise in the female participation rate would have implied an increase of a point in the annual unemployment rate had the employment level not changed.

As we mentioned above, there is empirical evidence in favor of a significative non-cyclical component in the evolution of the female labor force, so there are reasons to believe that there must be an important cumulative effect of the way women behaved over the 80s on the evolution of the unemployment rate. In order to measure this effect, we build an artificial economy in which we suppose that the female labor force evolves as the male labor force in the actual Spanish economy. This assumption yields the following time series for the female labor force in that artificial economy:

$$\tilde{A}_{t+1}^F = \frac{A_{t+1}^M}{A_t^M} \tilde{A}_t^F, \tag{2.2}$$

where $\tilde{A}_{1970}^F$ equals the actual female labor force. In this artificial economy the occupation and labor force levels for men coincide with the actual Spanish levels. Under these assumptions we calculate the female level of unemployment needed so that the unemployment rate in the artificial economy equals the unemployment rate in the actual economy. By construction, the female labor force in the artificial economy is smaller than its actual level, so for this economy to attain an aggregate unemployment rate as high as the actual rate, a larger female

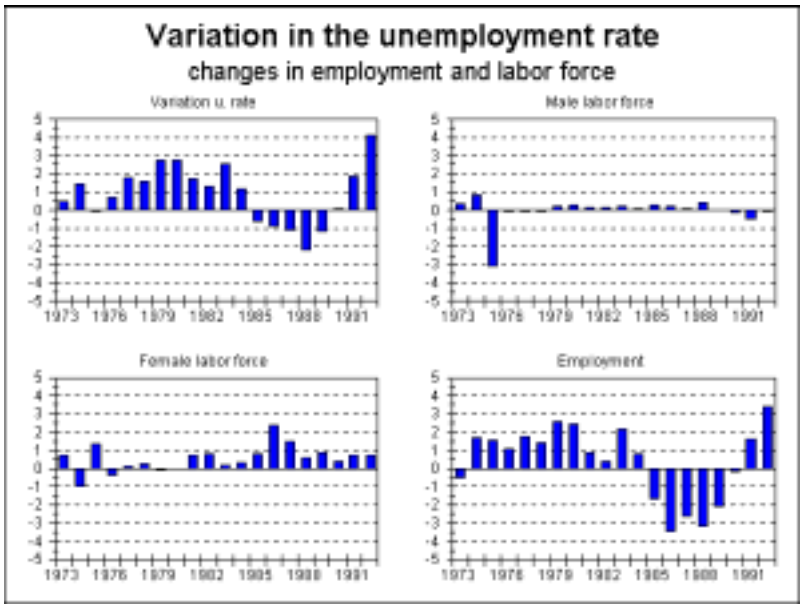

Figure 2.3:

unemployment is needed. Figure 2.4 shows the unemployment rate for women in these two economies over the period 1973-1993. It is only after 1987, the year of most rapid growth in female labor force participation, that the increasing women's labor force has a non-negligible effect on unemployment. Since 1987 the unemployment rate for women is, on average, three points higher in the artificial economy; given that the share of women in total labor force is around 0.31, this means that about one point of the unemployment rate is due to the "different" behavior of women in the labor market relative to men's.

2.2. Labor Migration

One of the factors that has often been thought to distort the true Spanish unemployment rate is migration; first because the large number of emigrants during the 60s and early 70s helped to keep the unemployment rate at an artificially low level, and second because the return of those emigrants during the late 70s, encouraged by the end of the dictatorship and, in part, forced by the less favorable economic conditions in the host countries, contributed substantially to the increase of Spanish unemployment during the political transition to democracy. We obtain that the yearly contribution of returned emigrants to the unemployment rate is about 0.52 on average, but the average accumulative contribution at the end of the period 1970-80 is 5.62 points.

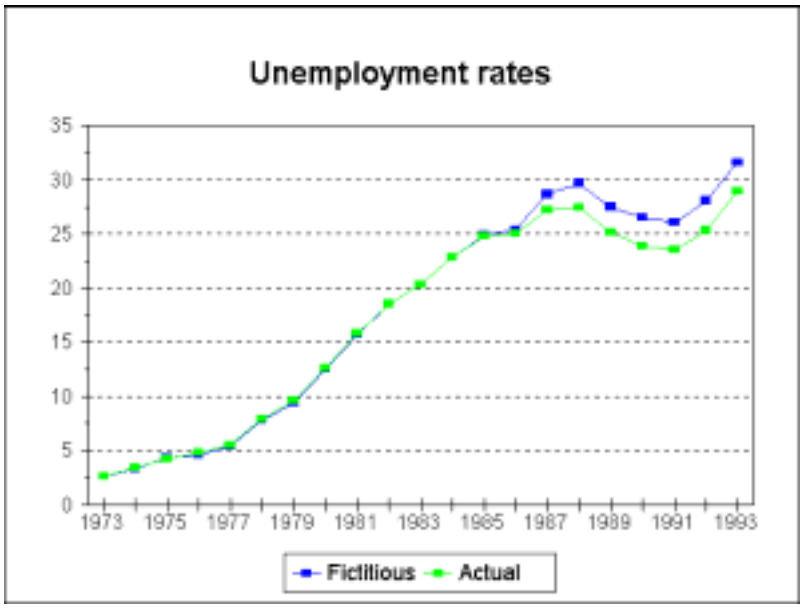

Figure 2.4:

We use annual data on migration from the Spanish Statistics Yearbooks for the period 1970-1994. Since 1983 these data classify emigrants in three categories: permanent, temporary and seasonal. Permanent emigrants are those that have a job contract longer than a year in the destination country, whereas temporary and seasonal workers are those who have a contract between three months and a year, and less than three months, respectively. The Labor Force Survey (EPA) includes the last two categories as part of the labor force until 1976 (after this tear only seasonal workers are included) but only provides disaggregate data on non-permanent emigrants for the period 1972-1976. The Spanish Statistics Yearbooks can fill up this gap for seasonal emigrant workers for the whole period 1970-1994, but only reports information on temporary emigrant workers from 1983 onwards. Since after 1980 the total number of emigrants accounts for less than 0.9 percent of the labor force, we focus our analysis on the decade 1970-1980. The data for this period is shown in Table 1. Note that, for this period, there are no data available on temporary workers.

In this section we will adjust the data on the labor force by substracting the unemployed seasonal workers, since, according to the definition in the Labor Force Survey, those workers are not looking for a job. In any case, they only appear during the years 1970-1976, so thereafter the adjusted labor force and the actual labor force are the same. As a result, for those years the unemployment rate will be lower than the rate considered in the other sections in this paper,

but coincides with the actual unemployment rate reported in the OECD statistics.

The argument behind the belief that the return of permanent emigrants had an important effect on Spanish unemployment during the mid 1970's is that, as a result of the inflows of returned emigrants, the labor force was increasing and that the economy could not employ all that augmented work force. To measure the contribution to unemployment of the returned emigrants we perform two exercises. In the first exercise we construct an artificial series for the active population removing from the actual series the annual inflow of returned emigrants. We calculate the unemployment rate assuming that the level of employment is the same as in the actual economy. The annual impact is shown in the third column of Table 2. We can see that yearly, at most 0.81 points of the actual rate are explained by the return of emigrants. The exercise is complemented by other exercise in which we remove from the labor force at each period the emigrants that returned up to that period. Obviously, the effect on unemployment is greater than in the previous case. The results are shown in the last column of Table 2. We obtain that if no emigrant had returned from 1970 onwards, the unemployment rate would have been around 5.5 points lower in the second half of the 1970s. This is a big number and should be handled cautiously. We have assumed that the employment level is unaffected by changes in the labor force, and this is a very strong assumption. Thus, we see this number as an upper bound. Our conclusion is that, in those years, returned emigrants had a sizable impact on the increase of the unemployment rate.

3. EVOLUTION OF SECTORIAL EMPLOYMENT

The evolution of employment is the most important factor in explaining the Spanish unemployment since there has been a net destruction of 285,750 jobs during the period 1970-1995. During this period, years of net employment creation go only from 1970 to 1973 and 1986 to 1991; thereafter, employment falls again and starts growing in 1995. The sector that has contributed the most to the employment decline is agriculture, with an average annual destruction rate of 4.57 percent, followed by industry with 1.6 percent points. The employment in the construction sector remains essentially the same with an average destruction rate of 0.04 percent, whereas services has a net positive effect on employment with an average growth rate of 1.95 percent points.

The sectorial distribution of employment plays a crucial role in the evolution of employment since the same bad shock affecting equally all sectors will imply a greater destruction of jobs in those sectors with higher employment shares. We will focus first on the evolution of sectorial employment in Spain and how much

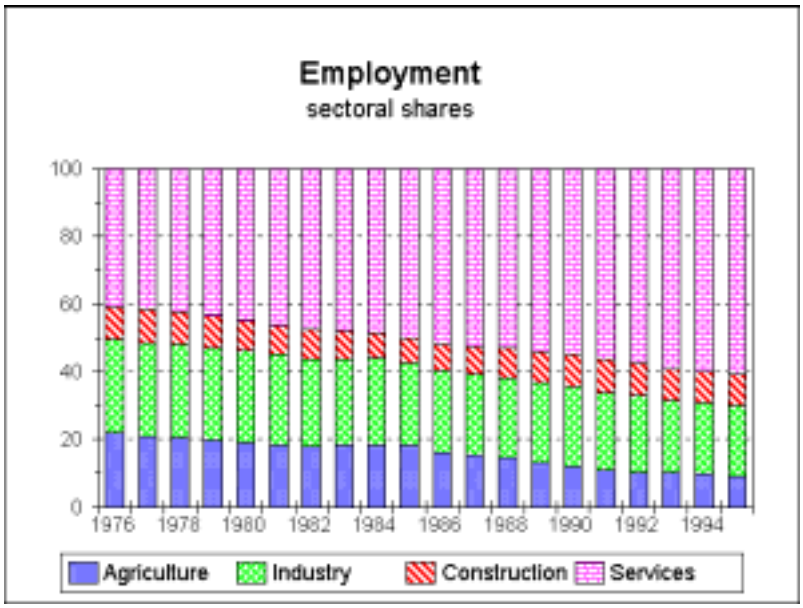

Figure 3.1:

has each sector contributed to the variation in the unemployment rate. This is the aim in section 3.1 where we stress the high share of agricultural employment in Spain relative to other European countries. Second, following Marimón and Zilibotti (1996), we analyze the cumulative effect of agriculture on the unemployment rate comparing the actual rate to the one obtained in an artificial economy in which agriculture has a smaller share in total employment, but the occupation growth rates are those of the Spanish economy. This difference will provide an upper bound of how much agriculture has contributed to the evolution of unemployment.

3.1. The Sectorial Contribution to Unemployment

Figure 3.1 shows the evolution of the sectorial composition of employment in Spain during the period 1976-95. The initial employment shares are 21.72, 27.69, 9.61, and 40.73 percent points for agriculture, industry, construction, and services, respectively. The employment share of services has increased 20 percent points over the whole period, whereas industry and agriculture have lost, respectively, 7 and 12.5 percent points; in contrast, employment in the construction sector has maintained roughly its initial share

The rapid employment destruction in agriculture is not surprising at all if we take into account that in Spain the agricultural employment share in 1976 dou-

bled the European Community average. In 1986 when Spain joined the EC, this share (16.20 percent) was still twice as much as the EC average; thus, although the rate of employment destruction was on average the same, the cost for Spain in terms of jobs was and has been much higher. Even in the 1990's the employment share of agriculture in Spain remains five percent points above the average of the European Union. For instance, the agriculture employment share of Italy in 1976 was roughly the Spanish share in 1986 (a ten years' delay!). During this decade the employment share for agriculture shrank about 6 percent points in both countries, but after 1986 this share has decreased at a much faster pace in Spain: from 1986 to 1993 the Spanish share lost 6 percent points, whereas the Italian one lost only three points. The case of France has been less dramatic since its agricultural sector accounted for 10 percent of the total employment as early as 1976. The agricultural share fell only 2.5 points over the decade 1976-86 and 2 more points from 1986 to 1993; in this year, the Spanish share (10 percent) reached the French share in 1976!. On the other side is Portugal, the country that has experienced the fastest employment decline in agriculture among European countries: its agricultural employment share fell from 1976 to 1986 12 percent points, remaining at 22 percent points. It fell 10 more points from 1986 to 1993, being only one percent point above the Spanish share in this year. Despite this, Portuguese unemployment in 1986 affected to 8.5 percent of the labor force, whereas in Spain the rate was above 20 percent points; afterwards, unemployment in Portugal declined three percent points in 1993, but in Spain rose two points.

Perhaps the fast growth of services in Portugal relative to Spain, together with a steady share of industry and construction in total employment, that contrasts with the Spanish employment decline in these sectors, could explain part of the Portuguese phenomenon. In summary, the rapid destruction of agricultural employment in Spain relative to other European countries (with the exception of Portugal) has probably something to do with the high differences in their unemployment rates.

The aim in this section is to measure the contribution of each sector to the increase in the unemployment rate. To do that, we decompose the variation in the unemployment rate in the following way:

$$u_t - u_{t-1} = -\frac{O_t^{Ag} - O_{t-1}^{Ag}}{A_t} - \frac{O_t^I - O_{t-1}^I}{A_t} - \frac{O_t^C - O_{t-1}^C}{A_t} - \frac{O_t^S - O_{t-1}^S}{A_t} + (1 - u_{t-1})\frac{A_t - A_{t-1}}{A_t}. \quad (3.1)$$

The term $-\frac{O_t^i - O_{t-1}^i}{A_t}$ measures the contribution to unemployment due the variation of employment in sector i; thus, employment destruction in sector i contributes positively to the increase in unemployment. The last term of the expression

Figure 3.2:

measures the contribution to unemployment of changes in the labor force, whose decomposition by sex was already analyzed in the previous section. Figure 3.2 shows the contribution to unemployment of both sectorial employment and the labor force. In the period 1976-1985 only services creates jobs, whereas all sectors, except for agriculture, have created employment during the period 1986-1990, especially services. The unemployment rate falls on average one percent point each year over this period. In 1987 the unemployment rate would have been 1.5 percent points higher, had the employment in services remained constant because of the increase in the labor force. The highest contribution of agriculture to the increase in the unemployment rate corresponds to 1980. That year, the unemployment rate would have been 10 percent instead of 11.7 percent if there would have been no employment destruction in agriculture. On average, each year's unemployment rate would have been one point below the actual rate if employment in agriculture would have not changed with respect to the previous year. Therefore, there must be an important cumulative effect on the unemployment rate due to the decline in agricultural employment. We measure this effect in section 3.2.

3.2. The Size of the Agricultural Sector

In this section we analyze the evolution of the unemployment rate in Spain for the period 1976-1995 under different initial conditions, concerning the size of the

agricultural sector and its employment creation rate of growth. As we mentioned earlier, the sectorial distribution of employment plays a crucial role in the evolution of unemployment since a same rate of employment destruction will imply a larger decline in employment the larger the employment share. Given that the share of employment in agriculture and the rate of employment destruction in this sector were substantially higher in Spain than in other European countries, the number of jobs lost in agriculture in Spain has been much higher. In order to measure the impact of the agricultural sector on the unemployment rate we construct two artificial economies. In the first one the number of jobs in agriculture is equal to that of 1976 throughout the period 1976-1995 and the evolution of the non-agricultural sector is the actual one. The second economy is constructed assuming that in 1976 the Spanish employment share of agriculture was equal to the value of the French share and that the rate of growth of employment in each sector is that occurred in Spain. The motivation for this exercise is the same as in Marimon and Zilibotti (1996) but, unlike these authors, we consider the actual Spanish rate of employment creation in agriculture instead of the French one. That is, we want to measure the effect on unemployment of a different initial employment distribution assuming that the shocks affecting the evolution of employment are the same as the actual shocks (productivity growth in terms of output per worker will be the same in the actual economy.)

Given that the actual employment in agriculture is falling in Spain over the whole period 1976-1995, the difference between the actual unemployment rate and that of the artificial economy provides a measure of how much agriculture has contributed to the increase in unemployment. The two exercises provide different measures. The first experiment measures the cumulative effect of agricultural employment destruction on the unemployment rate, whereas the second one gives a measure of the importance of the initial size of the agricultural sector. The unemployment rates for both artificial economies are shown in Figure 3.3. Note also that these two measures provide an upper bound and a lower bound, respectively, for the contribution of agriculture to unemployment. Mainly, the first one yields a much higher difference between the actual and the artificial unemployment rates because of the more favorable conditions to agriculture employment (no bad shocks). In the second case, we allow for employment destruction but mitigating its effect through a lower share of agricultural employment.

The actual and the artificial unemployment rates attained their first historical peak in 1985, the former being 21.94 percent points, whereas the fictitious rate is 6.36 percent points lower in the first case and only 1.82 points lower in the second one. After the temporary improvement during the late 1980's, both the actual and the artificial rates reach their second peak in 1994 with 11 percent points differential in the first case and 5.93 in the second; but, unlike the actual unemployment rate that outstrips its previous peak in almost two percent points,

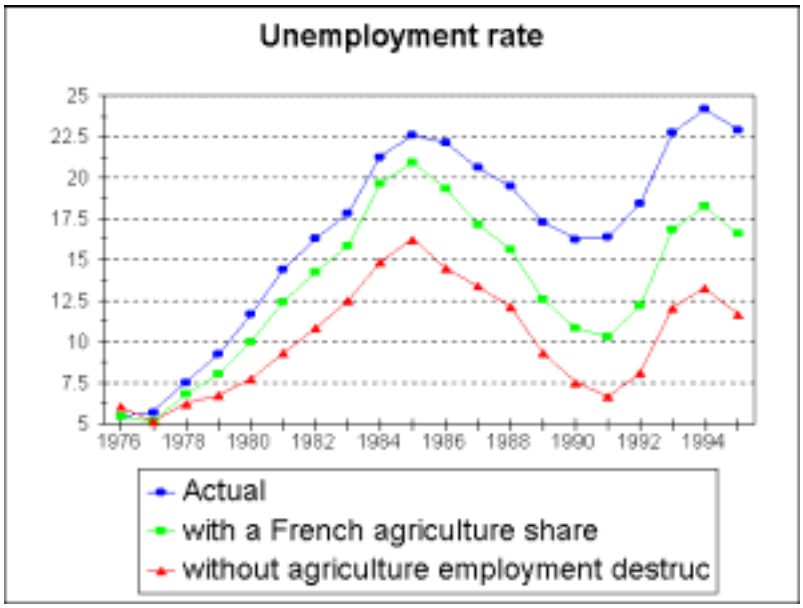

Figure 3.3:

the artificial rates are below their 1985 level. The difference between actual and artificial rates increases over time indicating that in both cases there is an important cumulative effect on unemployment. Under the first hypothesis, constant agricultural employment, this difference goes from an average of 2 percent points over the period 1976-1980 to an average difference of 10 points over 1990-1995. Under the second one, with a French agricultural share of employment, these differences go from 0.8 to 5.9 percent points over the same periods. The difference with the French rate in the period 1986-1993 goes from less than one point in 1989 to 7 points in 1986. Hence, we can conclude that, on average, between seven and ten percent points of the unemployment rate in the first half of the 90s is due to the agricultural sector.

4. LONG TERM UNEMPLOYMENT

One of the most striking features of Spanish unemployment is the average length of the unemployment spell: each year during the period 1986-1995 more than half of the unemployed population have been searching for a job during a year or more (long-term unemployed). In 1987, long-term unemployment represents 62.3 percent of total unemployment, the highest value over the whole sample period, being 56.5 percent at the end of 1995. Figure 4.1 shows the Spanish time series

for both total and long-term unemployment. On average, the Spanish share of long-term unemployment in total unemployment is three points higher than the European average; the cases of Italy and Belgium are also striking by their high long-term unemployment shares with an average of 63 and 60 percent points, respectively, over the first half of the 90s. It is worth noting, however, that higher long-term unemployment shares do not imply necessarily higher unemployment rates. A peculiar case is Belgium that with one of the highest long-term unemployment shares keeps its unemployment rate around 8 percent, below the European average.

Nevertheless, we may expect that as unemployment increases, long-term unemployment will also increase since, on average, the probability of finding a job is falling. It is easy to see from Figure 4.1 that since 1988 long-term and total employment evolve in the same direction: the long-term unemployment share declined 14 percent points during the period 1988-1991 (years of net employment creation) and grew 11 percent points during the period 1992-1994 (years of net employment destruction). In contrast, long-term and total unemployment evolve in opposite directions over the period 1986-1988; from 1986 to 1988 there is an increase in the share of long-term unemployment in Spain despite the decline in total unemployment: the number of unemployed workers searching for a job for a year or more increases 5.3 percent points, and those searching for a job for less than a year falls 9.6 percent points. One possible explanation of this fact is that the employment promotion policies adopted during the mid-80s had met with considerable success among young workers: apprenticeship contracts were extended to cover young workers of up to 20 years of age (instead of 18), and training contracts for people with higher education and qualification were extended from two to three years.

The first objective in this section will be to measure how much long-term unemployment has contributed to the evolution of total unemployment in Spain. We have seen that on average there is a positive association between unemployment and long-term unemployment; our conjecture is that there might be a feed back effect from long-term unemployment into unemployment since the longer a worker remains unemployed the higher the probability of remaining unemployed, due for example to the loss of skills during the unemployment period or to the reduction in the search effort associated with discouraged workers. With this aim, we will develope a simple partial equilibrium model and define two different measures to account for this effect. Second, we will explore how the length of the unemployment spell can be affected by different attitudes in the labor market; mainly those associated with the family status and the level of education. The data are taken from the Labor Force Survey for the period 1986-1995.

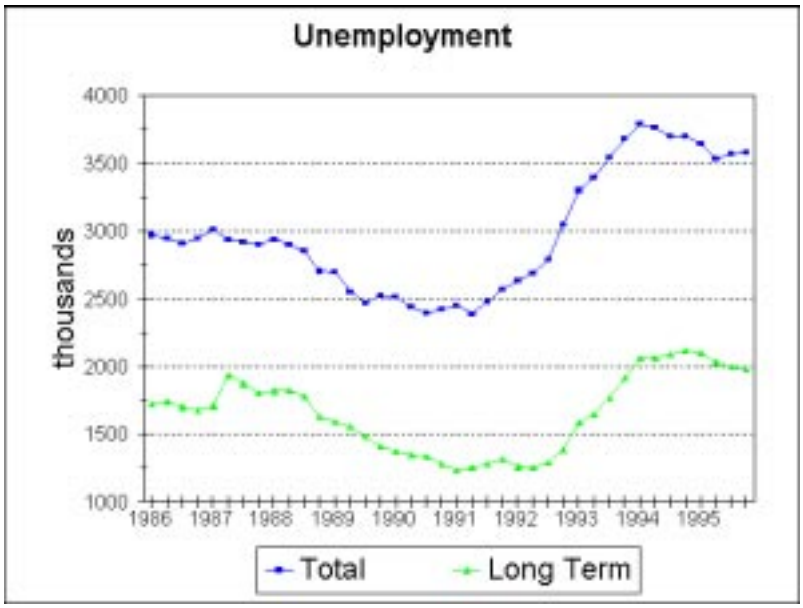

Figure 4.1:

4.1. A Simple Model

Let us assume an economy with constant population where agents live for T periods. Let E_t and U_t be the number of employed and unemployed people at the end of period t. At the beginning of next period each employed worker will face a probability p_{t+1} of being fired; if he is actually fired, then he cannot search for a job until the beginning of the following period (we assume markets open only at the beginning of each period). Unemployed workers will be classified by the length of their unemployment spell:

$$U_t = U_t^1 + U_t^2 + ... + U_t^n. \tag{4.1}$$

U_t^j represents the number of workers that have been unemployed during j periods at the end of period t for all $j < n$, while U_t^n represents the number of workers that have been unemployed at least n periods. The length of the unemployment spell will determine the probability of not finding a job next period; let this probability be q_t^j. So we have that

$$\begin{aligned} U_t^1 &= p_t E_{t-1}, \\ U_t^j &= q_t^{j-1} U_{t-1}^{j-1}, \text{ for } 1 < j < n, \\ U_t^n &= q_t^{n-1} \left(U_{t-1}^{n-1} + U_{t-1}^n \right). \end{aligned} \tag{4.2}$$

Note that total unemployed workers whose unemployment spell length is at least n by the end of period t, U_t^n, are those that in the previous period had an unemployment spell of $n-1$ periods, U_{t-1}^{n-1} plus those that by then had already been unemployed for n periods or more, U_{t-1}^n. Therefore, these two types of unemployed workers become of the same type in period t. It follows from the previous expression that the number of unemployed individuals of each category must satisfy:

$$\begin{array}{c} U_t^j \leq U_{t-1}^{j-1}, \qquad 1 < j < n, \\ U_t^n \leq U_{t-1}^{n-1} + U_{t-1}^n. \end{array} \tag{4.3}$$

Note that this is a reduced form model where the probabilities of remaining unemployed and of being fired should be interpreted as equilibrium probabilities, that depend on search effort, individual's skills, aggregate level of employment and more. We will use this simple model to measure the effect of long term unemployment on the unemployment rate for the Spanish economy during the period 1986-1995.

4.2. Measuring the Effect of Long Term Unemployment

In this section we will first obtain the probabilities for which the unemployment rates in the calibrated model match those of the Spanish economy. We use data from Labor Force Survey. The LFS classifies the unemployed individuals in seven categories:

1. Job found
2. Searching less than 1 month
3. Searching at least one month and less than 3 months
4. Searching at least three months and less than 6 months
5. Searching at least 6 months and less than 12 months
6. Searching at least 12 months and less than 24 months
7. Searching 24 months or more

Our period is going to be a quarter; thus, we aggregate them in four categories:

1. Searching less than 3 months, the number of which we identify with U_t^1, for any period t.

2. Searching at least three months and less than 6 months. This is the group of unemployed individuals which we have called U_t^2.

3. Searching at least 6 months and less than 12 months. This group is the sum of the individuals $U_t^3 + U_t^4$, which we are going to call V_t.

4. Searching 12 months or more. This is the group denoted as U_t^5, to which we will refer as to the group of long term unemployed individuals.

To calibrate the probabilities of our model we need to calculate the following expressions:

$$q_t^1 = \frac{U_t^2}{U_{t-1}^1}, \quad q_t^2 = \frac{U_t^3}{U_{t-1}^2}, \quad q_t^3 = \frac{U_t^4}{U_{t-1}^3}, \quad q_t^4 = \frac{U_t^5}{U_{t-1}^4 + U_{t-1}^5}, \tag{4.4}$$

Note that data on unemployed workers searching at least six months but less than a year need to be disaggregated into two groups, U_t^3 and U_t^4, and so that q_t^2 and q_t^3 cannot be obtained directly from the data. To compute all the transition probabilities stated in (4.4) we can fix arbitrarily q_t^2 or q_t^3. We will set the probability of an unemployed worker that has been searching for a job during three quarters of finding a job equal to zero, $q_t^3 = 1$. This way, probability of becoming a long term unemployed individual is maximized. This choice provides a lower bound on the gains from reducing long-term unemployment.

$$1 = \frac{U_t^4}{U_{t-1}^3} = \frac{V_t - U_t^3}{U_{t-1}^3} = \frac{V_t - q_t^2 U_{t-1}^2}{q_{t-1}^2 U_{t-2}^2}. \tag{4.5}$$

Using this expression, we can obtain all the transition probabilities for a j-period unemployed worker of becoming a $(j+1)$-periods unemployed individual. In Table 4 are shown the probabilities for 1995. According to this table, the probability of becoming a 2-period unemployed worker at the end of the first quarter of 1995 is 0.80. Throughout the whole year, the average probability of becoming a 2-period unemployed individual is 0.79. Likewise, we can interpret all the probabilities for the rest of the cases.

To measure the gains from reducing long-term unemployment we are going to conduct two kinds of experiments; in both of them we will assume that there are not unemployed workers for more than a year but the number of workers that enters unemployment is larger. In the first experiment the number of long-term unemployed workers in each period will be reallocated into the category of workers that have just become unemployed, and the unemployment rate at the

initial period of the sample (1986) will be set equal to the actual Spanish rate; then, the implied time series for the unemployment rate will be compared with the actual series. In the second experiment, the number of workers that enters unemployment is such that the unemployment rate equals the actual Spanish rate at every period. The difference between this number and the actual one will be the gain from eroding long-term unemployment, at each period, in terms of total unemployed workers; then, with the new unemployed labor force we can compute the corresponding time series for the unemployment rate and, as in the first experiment, get a measure of how much of the actual rate is due to long-term unemployment.

4.2.1. A First Experiment

To conduct this exercise we will construct from our calibrated model an artificial economy in which there is no long-term unemployment but it has a greater rate of entry into unemployment. The artificial economy is then constructed in the following way: all the transition probabilities are those calculated for the Spanish economy except for the probability of being unemployed more than four periods (more than a year) which will be set equal to zero. Thus,

$$\hat{q}_t^1 = q_t^1, \quad \hat{q}_t^2 = q_t^2, \quad \hat{q}_t^3 = q_t^3, \quad \hat{q}_t^4 = 0, \ \forall t. \tag{4.6}$$

In addition, the number of workers that enter unemployment at every period will be augmented, with respect to the actual data, by those that did not find a job at the end of the fourth searching quarter.

$$\hat{U}_t^1 = U_t^1 + q_t^4 q_{t-1}^3 q_{t-2}^2 q_{t-3}^1 U_{t-4}^1 \quad t \geq 5, \tag{4.7}$$

$$\hat{U}_1^i = U_1^i \quad \text{for all } i, \tag{4.8}$$

$$\hat{U}_2^1 = U_2^1 + q_2^4 \left(U_1^4 + U_1^5 \right), \tag{4.9}$$

$$\hat{U}_3^1 = U_3^1 + q_3^4 q_2^3 U_1^3, \tag{4.10}$$

$$\hat{U}_4^1 = U_4^1 + q_4^4 q_3^3 q_2^2 U_1^2. \tag{4.11}$$

The probability of remaining more than four periods unemployed is zero, thus, entry is augmented with those that would have remained unemployed had the probability been equal to that for the Spanish economy. Figure 4.2 shows the time series of both the artificial and the actual Spanish unemployment rates.

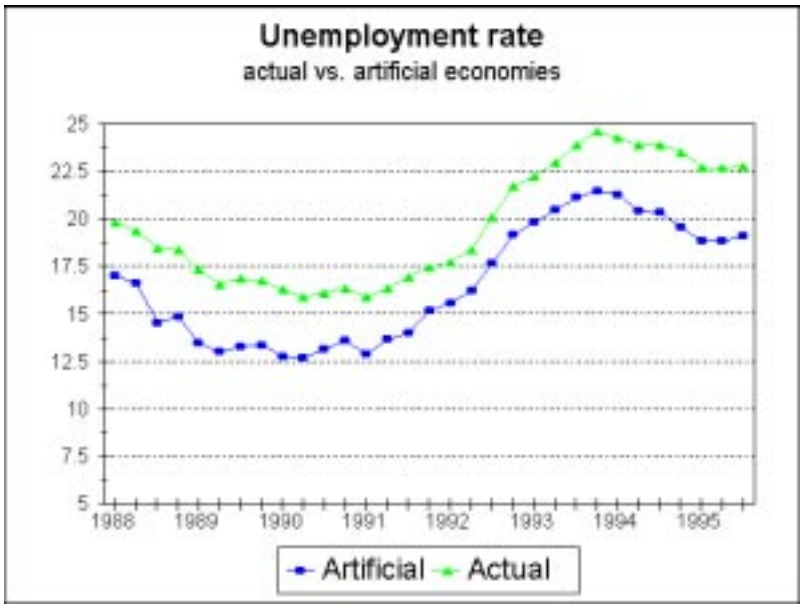

Figure 4.2:

On average, the former is 2.27 percent points lower over the period 1987-89, 2.79 for the years 1990-1992 and 3.25 during the period 1992-1995. So the gains from reducing long-term unemployment are greater whenever the unemployment rate is greater. Note that this measure of the contribution of long-term unemployment to unemployment is a lower bound since we have set the probability of a three-period unemployed worker of remaining unemployed next quarter equal to one; if this probability would have been lower, the gains from reducing long-term unemployment would have been larger.

4.2.2. A Second Experiment

In this case, as before, we set the probability for a three-period unemployed worker of remaining unemployed equal to zero, but entry to unemployment is set in such a way that the unemployment rate in the artificial economy matches the actual Spanish rate at every period. So the gains from reducing long-term unemployment in terms of total unemployed workers is given by the difference in the levels of unemployment entry between both economies, the artificial and the actual. Figure 4.3 shows that the number of workers in the artificial economy needed to keep the unemployment rate at its actual level doubles that of the actual Spanish economy. So, if we had not had workers unemployed for more than a year, the number of total unemployed workers in the Spanish economy would have been around U_t^1 workers lower every period. With this hypothetical unemployed labor force, we can derive the time series for the unemployment rate that would

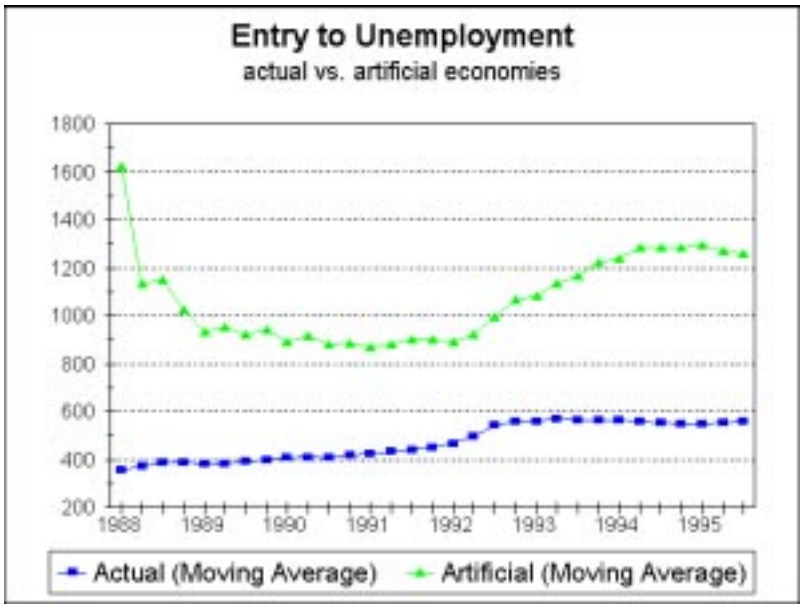

Figure 4.3:

have prevailed in the Spanish economy had we had no long-term unemployment, $\tilde{u}_t$:

$$\tilde{u}_t = \frac{U_t - \hat{U}_t^1}{A_t} \tag{4.12}$$

Figure 4.4 displays the two unemployment rates, the actual and the one implied by this second experiment. The unemployment rate in the artificial economy is about 3 percent points on average, very similar to the gain obtained in the first experiment.

4.3. Two Potential Explanations for the Length of the Unemployment Spell

Given that, on average, around 50 percent of the unemployed individuals are searching for a job longer than a year, we would like to explore which factors may affect individuals' behavior for the unemployment spell to be that long. To analyze the agents' behavior during the unemployment spell we can use a model economy in which individuals' success to find a job depends on their search effort and the level of education. An individual's search effort depends on his/her reservation wage relative to the current value of his/her expected income stream;

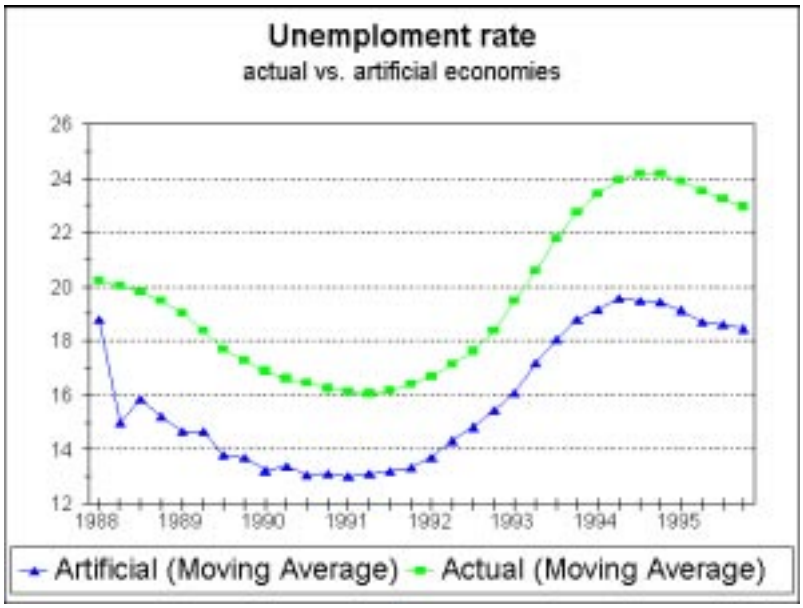

Figure 4.4:

so the higher the subsidy, the lower the search effort and the higher the reservation wage. Both effects tend to make longer the searching period. One argument that has been put forward to explain the persistence of long-term unemployment is that, given that family ties are very strong in the Spanish society, the family acts as an insurance mechanism that lowers search intensity; this conjecture rises the question of whether family status influences an individual's unemployment spell. On the other hand, individuals with higher education have higher expectations on potential earnings and may wait longer to find a good match. In this section we will explore how much these two factors can influence the unemployment spell length in the Spanish economy. We will use quarterly data from the Labor Force Survey for the period 1987-1995.

4.3.1. Family Status and the Unemployment Spell

The Labor Force Survey classifies the members of a household or family in five categories: the reference person, spouse, children, and other relatives or people not related to the reference person. The reference person is the member of the family regarded by the rest as the head of the household and, usually, the main source of income within the family; by spouse is meant the second highest recipient of income in the family; whereas the categories of children and others include members of the household that may work or not, but that rely on both the reference and the spouse in case of economic hardships. We will consider only three categories: reference, spouse and others; in this case, others includes the

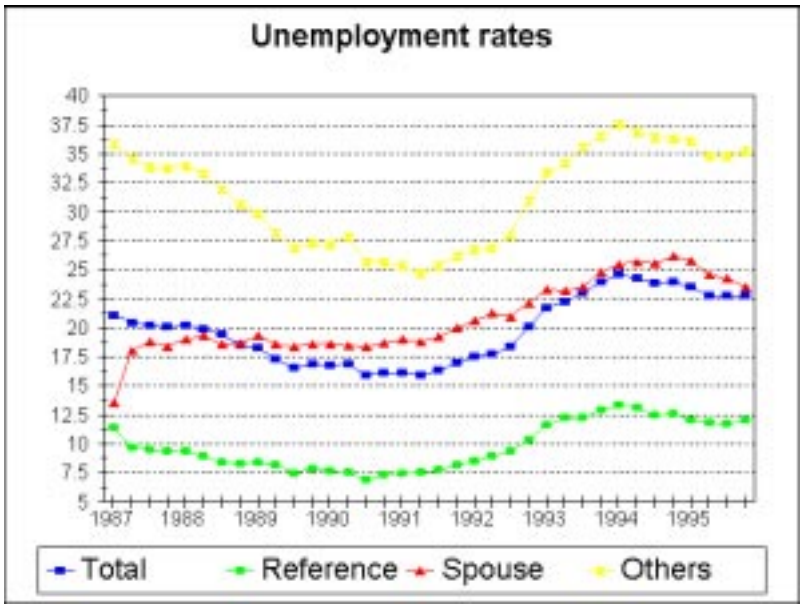

Figure 4.5:

rest of the categories in the LFS. According to the LFS of the third quarter of 1995, the average profile of an individual who is neither a reference nor a spouse is a single young individual aged below 30 who lives with her/his parents. We will use LFS quarterly data for the period 1987-1995 on unemployed individuals classified according to the length of their labor search period and family status. Figure 4.5 shows the unemployment rates for the three categories. Those with the highest rates are the group classified as others, which is consistent with the data on unemployed young workers relative to total unemployment. The lowest unemployment rate over the whole sample period corresponds to the reference person, being on average 10 and 20 percent points lower than the rate for the spouse and others, respectively. We conjecture that the category reference person is composed mainly by married men aged over 30, who have the lowest unemployment rates, and that the average spouse is a woman.[2] It is also worth noting that, in the fourth quarter of 1995, the unemployment rate among married individuals was about 16 percent, whereas for non-married individuals was more than 33 percent, very close to the 34.75 percent attained by the category "others"; in the same quarter, the unemployment rates for the categories of spouse and reference were, respectively, 24.27 and 11.72 percent points.

[2]It could be objected that many women are head of households, but we are assuming that Spanish families still have a bias to consider the male as the head, regardless of who earns the highest income within the family.

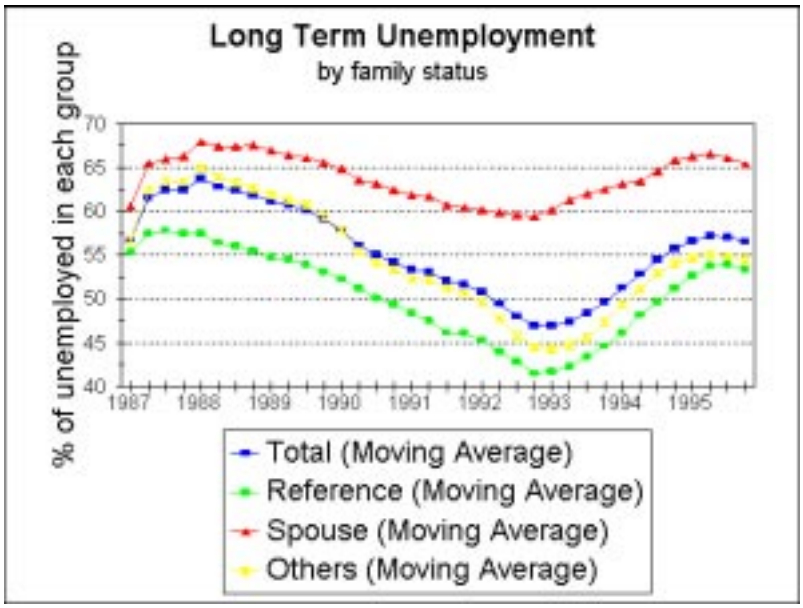

Figure 4.6:

Figure 4.6 shows the share of unemployed workers in each family group that has been unemployed for more than a year. The most interesting feature of this figure is that, on average, those who remain unemployed the longest are the individuals in the category "spouse", the difference with the other two groups is around 10 points. This evidence contrasts with the average profile of a long-term unemployed worker who in the 57 percent of the cases is the one classified as "other", what suggests that unemployment affects mainly young individuals living with their parents.

Our conjecture from Figures 4.5 and 4.6 is that the length of the unemployment spell depends on the individuals' family status. If this conjecture is correct, we should find fewer long-term unemployed workers if all family members behaved as if they were the "reference person". In turn, this would imply a lower unemployment rate, as we saw in the previous section. To measure this effect, we will use the model developed previously.

Accordingly, each family category of individuals will be disaggregated into the five unemployment spell-length types, assuming as before that the probability for an individual of type i that has been unemployed during 3 quarters of not finding a job next quarter is one: $q_{it}^3 = 1$ for all t and i. Table 5 shows the average transition probabilities in 1995 for each group, as well as the probability for an individual that enters unemployment in the first quarter of becoming long-

term unemployed at the end of the year. The highest probability of becoming long-term unemployed at the given period corresponds to the category "spouse" followed closely by the rest of the categories, whereas for those agents entering unemployment in the first quarter this probability is significantly higher for spouses.

Our conjecture is that the reference person has the lower reservation wage since he/she has to support financially the rest of the members of the household; thus, to measure how the unemployment spell-length is affected by the individual's family status, we are going to proceed, as in previous sections, building an artificial economy in which members of the household not classified as "reference" behave as if they were so. That is, we will assume that the transition probabilities for both categories spouse and others are given by the transition probabilities of the reference person. Moreover, entry to unemployment for spouses and others in this artificial economy is set so that the unemployment rate equals the actual Spanish rate at each period. Thus, if family status affects individuals' search behavior, we should find a higher entry to unemployment in this artificial economy than in the actual Spanish economy.

Figure 4.7 shows the levels of entry to unemployment for the two economies. As one might expect, in periods where long-term unemployment is growing (see Fig. 4.1) the difference between entry to unemployment in the artificial economy and actual unemployment entry is also growing, being this difference about two hundred thousand people in both the second and first quarters of 1988 and 1994, respectively. Since these people only represent about 1.3 percent of the total labor force in each period, it means that the unemployment rate would have been at most 1.3 percent points lower had everyone behaved as the reference person. Figure 4.8 shows the unemployment rates for the two economies. Note that the potential gains from a "better" attitude in the searching behavior are increasing in periods of employment creation, the difference between the actual and the artificial unemployment rates attains its peak in the second quarter of 1991, period with the lowest unemployment rate since the early 80s.

4.3.2. Education and the Unemployment Spell

In this section we investigate whether search effort in the labor market is influenced by the worker's education and so whether there is a relationship between an individual's unemployment spell-length and his/her education level. As before we should interpret our simple framework as a reduced form model where the transition probabilities depend on the workers' educational status.

The Labor Force Survey classifies unemployed workers by their education level in four major groups: primary, secondary, technical and higher education. The first group is composed by those individuals that at most have completed pri-

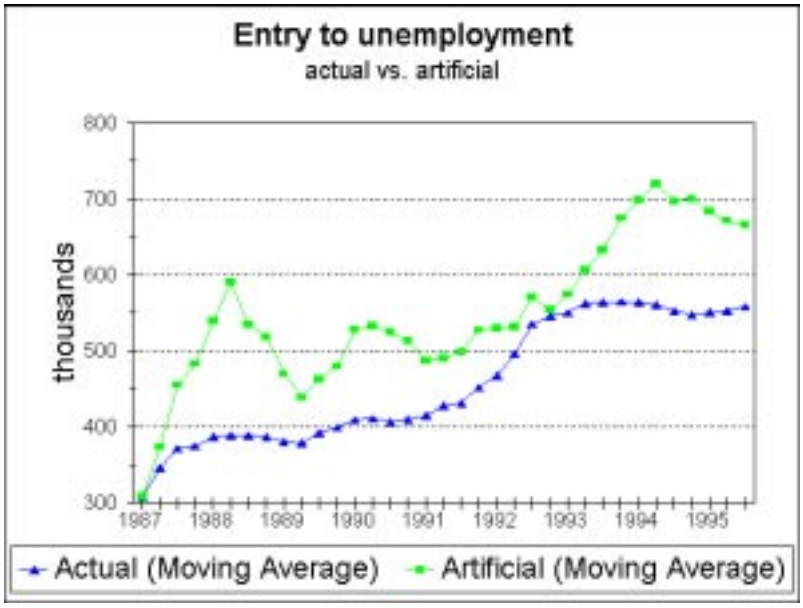

Figure 4.7:

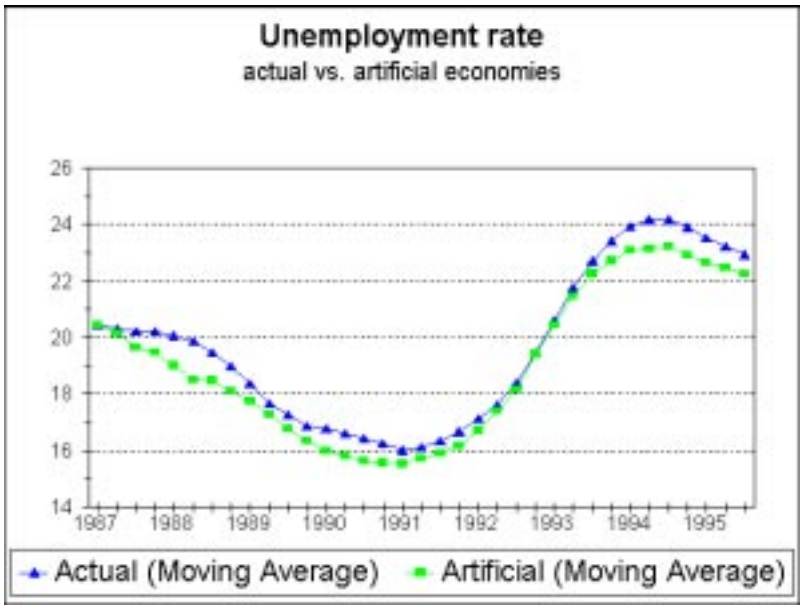

Figure 4.8:

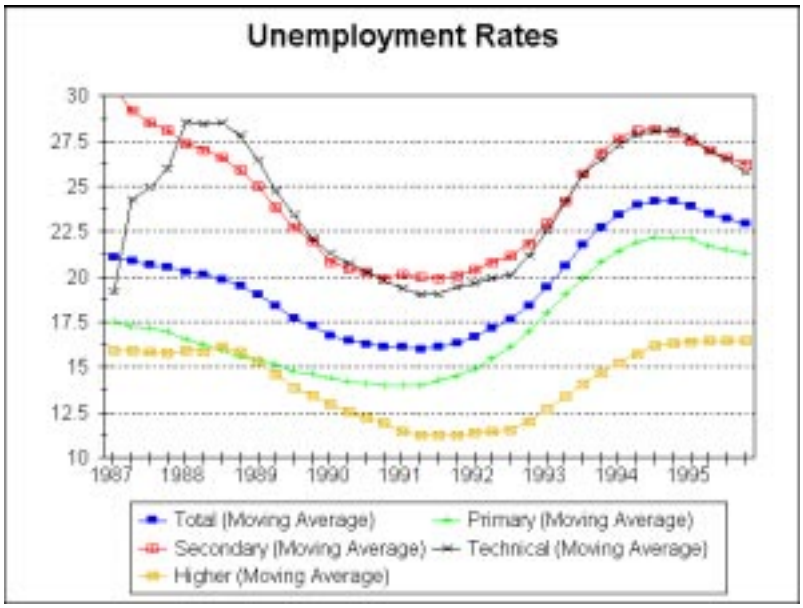

Figure 4.9:

mary school. The second and third groups include those individuals that have completed high school, those in the group of technical education refer to workers that have pursued studies which in other countries are offered in the vocational technical schools. The higher education group includes individuals with some university degree. The unemployment rates for each group are shown in Figure 4.9 for the period 1987-1995.

The striking feature of this figure is perhaps that since 1990 the highest unemployment rate corresponds to the group with secondary studies, followed very closely by the (secondary) technical education group. Its unemployment rate is on average 5 percent points above the global unemployment rate, whereas the groups with primary and higher education have, respectively, unemployment rates about 2.6 and 5.8 percent points lower than the global rate. Thus, there is not a monotonic relationship between unemployment rates and education levels. Our conjecture is that this feature hides the age effect. According to the LFS, in the third quarter of 1995, the average unemployed worker with primary studies is aged over 30, whereas the average unemployed individual with secondary and technical education is aged below 30; given that the unemployment rate is higher on individuals aged under 30, we find a non-monotonic relation between these two variables.

Nevertheless, when we look at the relation between the unemployment spell-

length and the education level, we find that the lower the education level the shorter the duration of unemployment. The group with primary studies presents the highest percentage of workers that remain unemployed during 'at most three months' and 'more than three months but less than six'. On average, the share of total unemployed individuals with primary education that remain unemployed at most three months is 17.85 percent points, four and seven percent points above the groups of secondary and higher education, respectively. This difference with the rest of the groups falls to one third and one percent points, respectively, when the search period is between three and six months, and becomes negative when the reference is an unemployment spell longer than six months.

Figure 4.10 plots the share of total unemployed individuals within each education category that are searching for a job longer than a year (long-term unemployed). This fraction is highest among the individuals that have completed some university degree, followed by those with secondary or technical education (these two behave very similarly), and by those with at most primary studies; this difference shortens from 1993 onward, becoming negligible between the last three groups. Thus, individuals that have pursued higher education wait longer to find a good matching to their skills. To measure whether this behavior has any effect on the unemployment rate we do the same exercise as in the last section with the family status. Now, q_{it}^{j} denotes the probability for a j-period unemployed individual with education level i of remaining unemployed at period t; as before, in order to disaggregate the unemployed population into the five unemployment spell-length types, we set $q_{it}^{3} = 1$ for all i. In this case, the group with the lowest long-term unemployed workers is that of primary education, hence the artificial economy is built so that the rest of the groups behave as if they had at most primary studies.

Table 6 shows the average transition probabilities for the whole period sample as well as the probability of becoming long-term unemployed for an individual that entered unemployment four quarters before. Thus, the probability of remaining unemployed at any stage, and the probability of becoming a long-term unemployed worker, increases with the level of education. Again, we find that individuals with a higher education level wait longer to find a suitable job.

Figure 4.11 shows the levels of entry in the actual and artificial economies; that is, the number of workers in the Spanish labor force that are unemployed at most one quarter, and the number of workers with this unemployment spell needed to match the Spanish unemployment rate in a world where every body behaves as if they had at most primary school. The time pattern of entry in this artificial economy is very similar to that found for the family status, although the difference between the actual and the artificial levels is a little smaller here. Indeed, when we compute the unemployment rate that would have prevailed in the

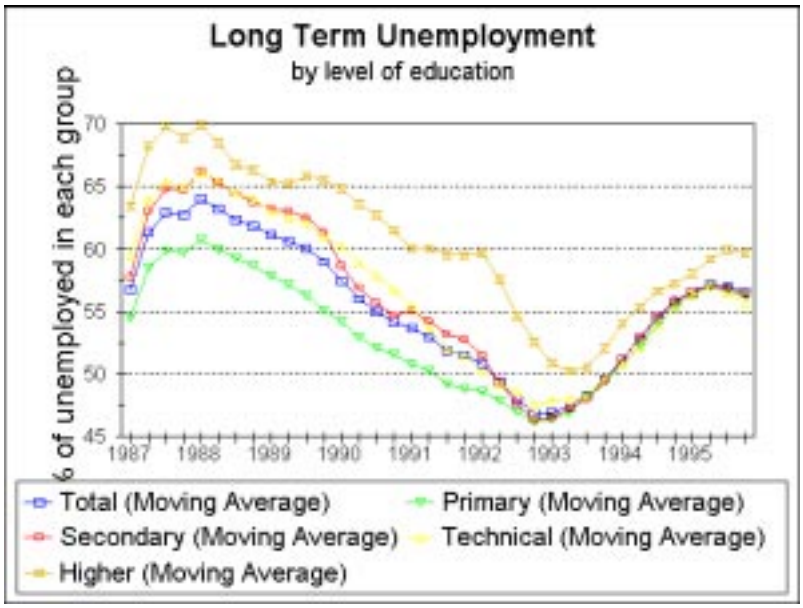

Figure 4.10:

Spanish economy had every unemployed worker behaved as if he/she had at most primary education, we find that the difference with the actual rate is around half percent points at most. This weak result is due to the fact that individuals that have pursued higher education (the group with the highest long-term unemployment) represent only 12.7 percent of the labor force, whereas those with primary education (the group with the lowest long-term unemployment) are 46 percent of the labor force and have a much higher rate of entry into unemployment. The results are shown in Figure 4.12.

The artificial economy differs from the actual one mainly in the behavior of the higher education group, that comprises a small fraction of the total long-term unemployment, only 10 percent points on average for the whole period considered. Thus, we do not find enough support to argue that education level affects the unemployment rate through the average length of the unemployment spell.

5. CONCLUSIONS

In this paper we have made an attempt to measure the contribution to Spanish unemployment of some of the features that characterize the Spanish evolution of both the labor force and sectorial employment. We find that the contribution

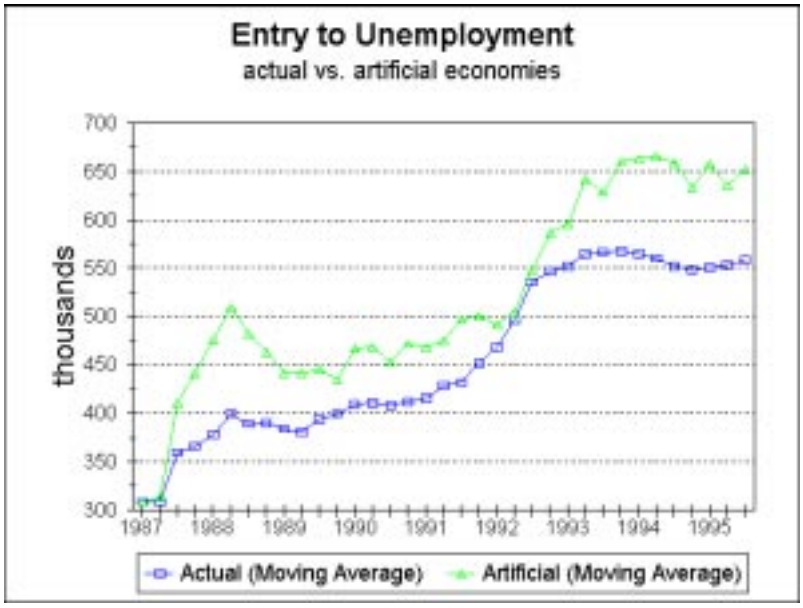

Figure 4.11:

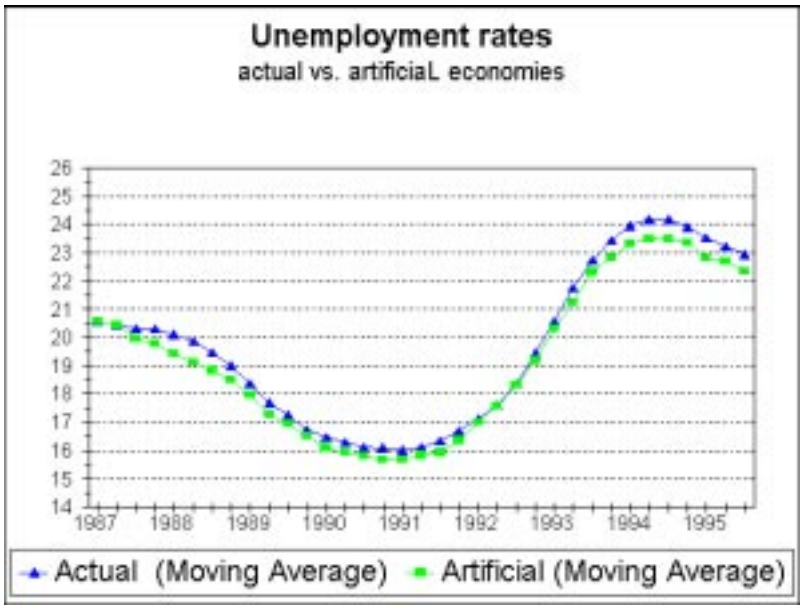

Figure 4.12:

to unemployment of returned emigrants is significant, and, on average, around 1 point of the annual unemployment rate since 1987 are due to the increasing female participation. We also find that the employment destruction in agriculture has had an important cumulative effect on unemployment, being its contribution to the unemployment rate between 7 and 10 cumulated percent points over the first half of the 90s. Both the increasing female participation and the contraction of the agricultural sector are features associated to the development process in any country, and therefore no policy measure can be undertaken to stop them. In contrast, policy measures aimed at reducing the share of long-term unemployment in total unemployment will help to reduce the unemployment rate; on average, about 3 percent points of the unemployment rate are implied by long-term unemployment over the period 1987-1995.

We further explore two features of the unemployed population that might arise as potential sources of long-term unemployment since they may affect the individuals' search effort. These two features are the unemployed individual's status within the family and his/her education level. We find that, on average over the period 1987-1995, more than 45 percent of the long-term unemployment effect on unemployment rates can be explained by a 'non-headship' position within the family; whereas at most 17 percent of that effect during periods of net employment creation (1987-1991 and 1994-1995) is due to a 'non-primary studies' attitude, being its contribution negligible over periods of net employment destruction. This weak aggregate contribution of the long-term unemployed individuals' education status on the unemployment rate arises because there are two effects that operate in different directions: the lower the education level the higher the probability of being unemployed, but the lower the probability of being long-term unemployed.

	Spanish Statistics Yearbooks			
Years	Permanent	Seasonal	Total	Percent of Labor Force
1970	101.27	106.23	207.50	1.67
1971	116.55	100.23	216.77	1.71
1972	110.14	100.89	211.04	1.62
1973	101.14	101.56	202.70	1.52
1974	55.28	99.12	154.40	1.15
1975	24.48	97.99	122.47	0.92
1976	15.50	97.28	112.78	0.85
1977	14.52	83.71	98.24	0.75
1978	15.62	94.98	110.60	0.84
1979	17.20	103.78	120.98	0.92
1980	17.41	93.53	110.94	0.86

Note: all the data are in thousands.
Table 1

	Returned	U. rate		
Years		Actual	Difference between actual and fictitious rate	
			Yearly	Accumulated
1970	72.84	1.07	0.59	0.59
1971	94.40	1.51	0.74	1.32
1972	82.38	2.81	0.63	1.93
1973	76.00	3.60	0.56	2.45
1974	89.65	4.01	0.65	3.09
1975	111.46	5.12	0.81	4.55
1976	75.15	4.95	0.55	5.03
1977	65.59	5.68	0.47	5.35
1978	52.72	7.52	0.37	5.56
1979	36.31	9.20	0.26	5.66
1980	20.26	11.67	0.15	5.62

Table 2

Transition Probabilities	q_t^1	q_t^2	q_t^3	q_t^4
1995IQ	0.80	0.62	1.00	0.88
1995IIQ	0.78	0.70	1.00	0.86
1995IIIQ	0.84	0.57	1.00	0.87
1995IVQ	0.75	0.72	1.00	0.85

Table 3

	Transition Probabilities				Probability of being long term unemployed
	q_{it}^1	q_{it}^2	q_{it}^3	q_{it}^4	
Reference	0.73	0.62	1.00	0.85	0.39
Spouse	0.84	0.75	0.93[3]	0.89	0.56
Others	0.89	0.64	1.00	0.86	0.42

Table 4

	Transition Probabilities				Probability of being long term unemployed
	q_{it}^1	q_{it}^2	q_{it}^3	q_{it}^4	
Primary	0.76	0.60	1.00	0.86	0.39
Secondary	0.79	0.67	1.00	0.86	0.45
Technical	0.82	0.67	1.00	0.85	0.50
Higher	0.88	0.75	1.00	0.90	0.51

Table 5

[3]This probability is less than one to avoid negative numbers in the group of unemployed between 6 and 9 months.

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