

# MACROECONOMIC CONDITIONS, INSTITUTIONAL FACTORS AND DEMOGRAPHIC STRUCTURE: WHAT CAUSES WELFARE CASELOADS?

Autores: *Luis Ayala*<sup>(a)</sup>

*César Pérez*<sup>(b)</sup>

P. T. N.º 2/03

(a) Facultad de Ciencias Sociales. Universidad de Castilla-La Mancha. Avenida de los Alfares, 44. 16002 Cuenca. Spain. [luis.ayala@uclm.es](mailto:luis.ayala@uclm.es).

(b) Instituto de Estudios Fiscales. Avenida Cardenal Herrera Oria, 378. 28035 Madrid. Spain. [cesar.perez@ief.minhac.es](mailto:cesar.perez@ief.minhac.es).

N.B.: Las opiniones expresadas en este trabajo son de la exclusiva responsabilidad de los autores, pudiendo no coincidir con las del Instituto de Estudios Fiscales.

Desde el año 1998, la colección de Papeles de Trabajo del Instituto de Estudios Fiscales está disponible en versión electrónica, en la dirección: ><http://www.minhac.es/ief/principal.htm>.

Edita: Instituto de Estudios Fiscales

N.I.P.O.: 111-03-006-8

I.S.S.N.: 1578-0252

Depósito Legal: M-23772-2001

## INDEX

### INTRODUCTION

#### 1. THEORETICAL FRAMEWORK

- 1.1. Macroeconomic Conditions
- 1.2. Programme's Parameters
- 1.3. Demographic Factors
- 1.4. Interaction with Other Programmes
- 1.5. The "Time Factor"

#### 2. DATA

- 2.1. The IMI Programme
- 2.2. Choice of Variables

#### 3. MODEL SPECIFICATION AND METHODOLOGICAL DECISIONS

#### 4. RESULTS

- 4.1. Stationarity and Order of Integration Analysis
- 4.2. Cointegration Analysis and Model Estimation
- 4.3. Alternative Models
- 4.4. Results by Household Types

#### 5. CONCLUSIONS

### ACKNOWLEDGMENTS

### BIBLIOGRAPHY



## **ABSTRACT**

Some of the possible determinants of the changes observed in the welfare caseloads have been analysed in this study. Our model attempts to explain variations in the welfare caseloads on the basis of four different factors: macroeconomic conditions, interactions with other income maintenance programmes, changes in the programme's parameters and changes in the demographic structure. The model was tested by applying different time series techniques. The data employed is of an administrative nature and covered the whole period the Madrid programme has been in operation. The results show that institutional factors carry more weight than macroeconomic factors concerning changes in the welfare caseloads. The results warn against the standardisation of political decisions given that the effects vary considerably among the different demographic groups.

**JEL:** I30, I38, C22.

**Keywords:** welfare, caseloads, cointegration.



## INTRODUCTION

The search for the determinants behind changes in welfare caseloads has become one of the most relevant questions when analysing anti-poverty programmes. The traditional view asserting that welfare caseloads are essentially the result of macroeconomic conditions has been seriously questioned in recent years. A line of research emphasising the influence of other factors such as welfare reforms, interactions with other programmes and modifications in demographic structure has grown in importance.

There are various reasons that make the effort of quantifying the main determining factors behind these changes interesting. The need to assess the direct effects of political decisions makes it necessary to differentiate between the influence of reforms from the changes caused by fluctuations in the economic cycle. If the main determinant turns out to be the implementation of structural reforms that manage to reduce the welfare caseload due to an increase both in the number of people entering the labour market and in the income of recipients, then it would be reasonable to expect that the effects of such policies would continue in the long-term. If, on the other hand, the factors contributing to a reduction in the caseload figures are mainly linked to the economic cycle, then welfare reforms will probably have a short-term effect. Differentiating among the various factors should also provide a greater capacity to predict the possible budgetary implications of different alternative economic scenarios.

A growing body of theoretical and empirical work aimed at analysing the determining factors behind changes in welfare caseloads has been carried out in recent years. This has resulted in the incorporation of more complex and varied hypotheses along with a refinement in analytical methods<sup>1</sup>. Most of these studies concern countries as a whole, changes in a country's different regions or states or changes in a specific regions or state. The reasons for the expansion in this literature include the importance these programmes have gained both quantitatively and qualitatively, the size of the changes in welfare caseloads, the availability of new panel and cross-section data, as well as the need to assess the reforms made to these systems in the 1990s.

However, the little attention that has generally been paid to the statistical properties of the series is striking. In some cases, this can limit the strength of the relations established between the caseloads figures and the explicative variables chosen. This study looks into the possibilities of applying alternative methodological approaches by examining the data on people receiving minimum income benefits in a Spanish region (Madrid). Its main innovations as compared to

---

<sup>1</sup> The increase in the literature has led to several studies synthesising the different approaches and the empirical evidence. It is worth mentioning, Moffit (1992), Stapleton et al. (1997), Mayer (2000), Bell (2001) and Blank (2001a), among others.



other studies include the use of monthly data covering the whole period the programme has been in operation, the introduction of a new explicative variable summarizing the programme's restrictiveness, the differentiation of the variables' effects by demographic groups and the use of cointegration techniques to study the most significant statistical relationships.

More specifically, the study is structured as follows. The theoretical grounds for the analysis are introduced in the first section. This is done through a review of the possible relationships between the variable under study (the relative number of welfare recipients) and its possible determining factors. In the following section, the study's reference data are reviewed and a primary descriptive analysis is made of the main variables used. An econometric specification of the theoretical model based on the available data is put forward in the third section, along with a review of the possibilities and limitations of the approach used, as well as of the different alternative options. The main results obtained by the study are presented in the fourth section. The study ends with a brief list of conclusions.

## 1. THEORETICAL FRAMEWORK

Any theoretical proposal to analyse changes in welfare caseloads should be based on a combination of microeconomic and macroeconomic elements. The caseload of an income maintenance programme for poor households ( $B$ ) in a specific area  $i$  can therefore be represented as a function of the number of eligible households or individuals ( $E$ ) and the possibility that the latter will decide to participate or not, commonly known as *take-up* ( $K$ ):

$$B_{it} = E_{it} * K_{it}$$

The overall caseload of a welfare programme will therefore be the sum of individual decisions taken on participating in the programme, which in turn will depend on a given vector of exogenous variables such as employment opportunities or the programme's eligibility requirements.

The economic theory behind welfare programme participation is grounded in a basic discrete choice model<sup>2</sup>. Based on a maximising utility function, each individual will decide to take part ( $P$ ) or not ( $NP$ ) by assessing the different combinations of income and leisure associated to each decision. The utility function of participating in a programme is determined by the characteristics of potential recipients ( $X_i$ ), the chances of obtaining income from the labour market ( $W_i$ ), the parameters of the programme itself ( $PP$ ) and other residual factors ( $Z_i$ ):

---

<sup>2</sup> For a detailed discussion of the microeconomic theories on welfare take-up, see Strauss (1977), Ashenfelter (1983), Cowell (1986), Moffitt (1992) and Duclos (1992).

$$U_t(P) = f(X_t, W_t, PP_t, Z_t) - C$$

where  $C$  represents the costs of taking part in the programme (claiming costs, time, stigma, etc.). Each individual or household will decide to participate if the utility of receiving the welfare benefit is greater than that of remaining outside the programme:

$$\theta_t = U_t(P) - U_t(NP)$$

If  $\theta_t > 0$ , the decision will be to take part in the programme. Consequently, the welfare caseload will increase supposing the number of eligible households remains constant.

Under the assumption of constant take-up decisions we will use macroeconomic models on the determining factors for welfare caseloads that emphasise the explicative capacity of exogenous variables associated to eligibility. In its simplest version, a basic model is commonly accepted in which the number of recipients at  $t$  is a function of the macroeconomic conditions ( $L_t$ ), the welfare programme's parameters ( $PP_t$ ), a set of the population's demographic characteristics ( $D_t$ ) and interactions with other income maintenance programmes ( $O_t$ ):

$$B_t = f\{L_t, PP_t, D_t, O_t\}$$

This model has been widely used over the last decade due to the large changes registered in the caseload figures for American welfare programmes. A rapid rise in the figures was seen in the mid-1990s followed by a very drastic fall in the following five years. The coincidence of an economic boom along with the implementation of a historic welfare reform that included new initiatives designed to ease labour market participation and the imposition of stricter time limits led to an increase in the number of studies dedicated to analysing the relationships proposed. Different hypotheses can be deduced from these, the most relevant of which are centred on the four factors outlined below.

### 1.1. Macroeconomic Conditions

The most obvious determinant of welfare caseloads is the strength of the economy. There are several reasons to link possible fluctuations in the size of welfare programmes to the sequence of economic recessions and booms. The main channels of influence are changes in the labour environment. When economic activity accelerates, the reduction in overall unemployment and the improvement in the jobs held by the less skilled workers act to reduce the number of new entries into welfare and leads to a higher number of exits. In periods of recession, however, increases in unemployment have the opposite effect. The relationship between unemployment and the caseloads will depend, in any case, on the peculiarities of each labour market. Factors like the within-household distribution of unemployment or a given labour market's institutional factors may alter the previous theoretical hypotheses.



The rate of unemployment is considered as the representative variable for macroeconomic conditions in most of the models<sup>3</sup>. Time lags are introduced in some studies to estimate its effects more accurately<sup>4</sup>. Current variations of welfare caseloads can be the result not only of present changes but also of previous macroeconomic shocks. This is due to the fact that there are factors that can ease (delay) the transition to a situation of unemployment and the need to rely on welfare programmes. For instance, households have savings in the short-term or can count on informal protection networks. Even in the absence of these elements, there are also other possible factors to account for these time lags, such as the time needed to search for information on the possibilities of substituting income or to complete the paperwork needed to qualify for welfare benefit entitlement<sup>5</sup>.

Some authors nevertheless question the validity of the unemployment rate as the reference variable for the relationship between macroeconomic conditions and welfare caseloads. Hoynes (2000) showed that increases in employment are more important to explain the exits from and re-entries to these programmes than changes in unemployment. Along similar lines, other authors use the difference between real and potential employment (CBO, 1993). Structural changes in the earnings structure are considered in other studies and special emphasis is placed on certain industries –services (Shroder, 1995), manufacturing (Cromwell, 1986) and trade (Barnow, 1988 and Garasky, 1990)– or more direct earnings indicators of less skilled workers. Blank (2001b) takes the earnings received by the first two deciles, while Bartik and Eberts (1999) consider relative earnings of different educational levels<sup>6</sup>.

## 1.2. Programme's Parameters

In the same way that the economic cycle can influence the evolution of welfare caseloads, reforms of these programmes' main parameters can also play an important role. Expansive reforms will have a positive effect on the caseload

---

<sup>3</sup> In most cases, employment data from active population surveys is used. Only a small number of studies use data on the registered unemployment. In some of these, the reason is due to the regional and not national focus of the study (Barnow, 1988).

<sup>4</sup> The lags in the studies reviewed range from a minimum of three months up to a maximum of three years (CBO, 1993). It is common practice to consider lags equivalent to or less than a year.

<sup>5</sup> Most of the empirical studies confirm that a year's lag on the unemployment rate has greater explicative capacity than the current rate. However, Bartik and Eberts (1999) obtained a larger effect when lags were not introduced.

<sup>6</sup> Other studies use the minimum wage. Turner (1999) shows that hypothetically higher minimum wage levels could increase the number of exits by 2.5 points. It is not clear, however, what effects this could have on possible reductions in the demand for poorly qualified workers.

figures by increasing the number of eligible individuals. On the other hand, making benefits eligibility and duration conditions harsher can have the opposite effect. These changes can therefore reinforce or offset the effects caused by macroeconomic conditions. While a rise in unemployment leads to an increase in the number of potential recipients, the imposition of stricter entitlement criteria concerning age, the number of children or possible labour-oriented obligations may vary the total number of recipients.

One of the most important parameters is the duration of benefits. Imposing stricter time limits automatically reduces the number of people eligible for these schemes<sup>7</sup>. As the expiry date of a benefit approaches, recipients are forced to make their job-search strategies more flexible. Increasing the amounts of benefits paid out produces the opposite effect. The higher the benefits are, the greater the number of eligible individuals there will be. Some empirical studies have tried to calculate this effect by taking the maximum benefits the different kinds of households units can obtain in relation to their potential earnings. However, the interaction of different tax rate scenarios and welfare programme designs gives rise to budget lines that are difficult to specify. Although the use of budget sets that are not strictly lineal is more and more common when tackling the relation between these programmes and the labour-supply decision of consumer theory, the characterisation of these non-convex constraints is far from adequate (Heckman, 1993).

An alternative to considering changes in specific parameters is the introduction of a general indicative variable to represent the reforms implemented. Some reforms may simultaneously promote greater coverage among the poor and place more obligations on the recipients. The final balance regarding the number of recipients could be negligible. One way of avoiding this possible problem of interpretation is to use variables that summarise a programme's restrictiveness. The difficulties involved in finding such variable are, however, very important. Some studies have used the political orientation of the party holding a parliamentary majority (Blank 2001b). This choice is justified by the existence of different political value judgements on welfare programmes. Negative value judgements can be transmitted to the management of such programmes through many different ways such as the introduction of more labour-oriented, stricter anti-fraud controls and pre-determined behaviour among social workers<sup>8</sup>. Other studies use a combination of government characteristics that theoretically demonstrate better quality in the design of the reforms (Mead, 2001).

---

<sup>7</sup> See Grogger (2000) Bloom y Pavetti (2001) and Moffitt and Pavetti (2000).

<sup>8</sup> Measuring the effect of changes in the orientation of programmes regarding the behaviour of social services professionals is very complex. One exception is Ellwood (1999), who estimated various indicators regarding "negative predisposition" of social workers produced by reforms.



The variable that best summarises a programme's restrictiveness (expansiveness) is budgetary allocation. If the budget allocation for these programmes is reduced, it is probable that most of their parameters will also be altered, including more restrictive eligibility requirements, stricter means-testing to determine benefit entitlement and greater pressure applied on recipients (more exhaustive controls on children education, hygiene requirements, training activities, etc). Total expenditure must be normalised by another variable. The first alternative that comes to mind is considering per recipient expenditure. The main limit with this option is the specification problem resulting from the inclusion of an endogenous variable among the explicative factors. Another option is considering the current flow of benefits applications. Although this solution may produce some problems of multicollinearity due to possible relations with other explicative factors, it avoids the problem mentioned above.

### 1.3. Demographic Factors

The application of discrete choice models to databases that include households' participation in anti-poverty programmes has allowed a series of socio-economic characteristics associated with households most likely to depend on such benefits to be identified. Among these, several socio-demographic variables stand out such as sex, household type or ethnicity. Comparative studies have shown that in most OECD countries there are a greater number of women than men participating in these programmes. These studies have also revealed an important presence of single individuals and, most notably, a very high presence of lone-parent households (Heikkilä et al., 2001). The sensitivity of these groups to the economic cycle is considerably less than for the other population groups. This means that an increase in the demographic weight of these households will almost certainly lead to an increase in the number of welfare recipients if all the other factors remain constant. Many studies incorporate this variable into their analyses either through direct estimates of the group's demographic weight or by means of approximations such as the number of marriages or divorces<sup>9</sup>. Other variables that have been included in the models are the size and age of the population<sup>10</sup> and, as has been mentioned above, belonging to certain ethnic groups that are particularly prone to suffering higher poverty rates.

---

<sup>9</sup> Increases in this variable would limit the eligible population of those programmes basically aimed at women with children. This is the case of the AFDC and TANF programmes in the United States.

<sup>10</sup> Age is a determining eligibility factor in some systems. Most social protection systems have specific social protection schemes to protect against the risks brought about by old-age. The ageing of the population receiving benefit could lead to a reduction in the number of eligible individuals in the long-term.

Some authors question the exogeneity of these variables<sup>11</sup>. Specialised microeconomic theory allows working hours, decisions to form new households and the number of children to be related with labour market conditions as well as income maintenance programmes. Some models extend the analytical framework to include not only the welfare caseload but also to the effect that reforms of these programmes can have on the demographic variables which are usually included as exogenous<sup>12</sup>. Studies on the effects of programme's parameters changes do not seem to confirm, however, the existence of a clear causal relationship regarding family structure. This would validate the inclusion of these variables in the usual lineal specifications of these models. Smith (1993) applied cointegration techniques to discover that the presence of young children was the main determining factor for the working and demographic behaviour of families receiving these benefits and not the effects of the programmes themselves. Other studies that used both cross-section data (Keane, 1995) as well as time-series data (Hoffman and Duncan, 1995) also confirmed the absence of a significant effect of these programmes on the formation of dependency chains as well as changes in household structure.

#### 1.4. Interaction with Other Programmes

There are other institutional factors apart from parameters changes that can have an influence on welfare caseloads. These welfare programmes constitute a last safety net as they cover households lacking alternative sources of income that have used up their entitlement to other social programmes. Hence, a large implicit or hidden demand for these programmes may exist that is not materialised in caseload figures due to the existence of other programmes that provide greater and more wide-ranging coverage for specific poverty risks. There is a specific line of research dedicated to studying the effects of the interactions among the different welfare schemes<sup>13</sup>.

Such interactions can be of two kinds. The first occurs when the eligibility requirements of a programme automatically guarantees entitlement to another scheme. The expected relationship would be positive. A second interaction is when entitlement to different kinds of welfare benefits is incompatible: eligibility for programme *B* is only possible once entitlement to the benefits of pro-

---

<sup>11</sup> A synthesis of the problems posed by the acceptance of the hypothesis of the demographic variables' exogeneity can be found in Mayer (2000).

<sup>12</sup> Schoeni and Blank (2000) analysed the effects of the latest reforms on changes in programme caseloads and family structures, while Moffit (1999) looked into the effects on employment participation and women's salaries.

<sup>13</sup> See Blank (1989), Winkler (1991), Stapleton et. al. (1997), Moffitt and Wolfe (1992), and Yellowitz (1995) for the United States and Fortin et al. (1999) for Canada.



gramme *A* has been used up. This is generally the case in the various European welfare systems in which entitlement to minimum income benefits is possible only when the time limits for receiving a contributory benefit or specific means-tested benefits have run its course. If these benefits' capacity to provide protection is reduced, then an increase in last resort caseloads is likely to be produced. These interactions take on a special significance when there are sub-national levels of government providing each benefit. Along the lines of the proposals put forward by asymmetric games models, the setting of benefits at two distinct governmental levels could have different incentives so that this complementary relationship is deliberately intensified in order to transfer welfare recipients from one level to another. This is particularly true in contexts characterised by budgetary restrictions at one of the two levels of government<sup>14</sup>.

### 1.5. The "Time Factor"

The last *a priori* determinant for changes in the welfare caseloads is the time factor. There are different matters related to time that can both affect the variables mentioned above as well as give rise to new hypotheses. Time effects are frequently found in the econometric implementation of these models. These attempt to reflect the effects caused by variables that may have been left out of the model. In some cases, their inclusion means increasing the explicative capacity of the models in addition to producing some changes in the statistical significance of the variables on the economic cycle and programmes changes. Another question regarding time is the possibility of a seasonal component in the evolution of the series. This is relevant because the data used in most studies is of an administrative nature. If the pertinent adjustments are not introduced, the results could be affected by statistical biases (Barnow, 1988). Most of the panel data studies use annual or quarterly data. Nonetheless, Ziliak et al. (2000) used monthly data obtaining much more significant effects for the cycle than most of the other studies. The use of annual instead of quarterly data can cause an 'aggregation bias' if it leads to a loss of information on the variations that can be detected on a monthly basis.

In any case, the main implication of considering the time factor to interpret changes in welfare caseloads lies in the possibility that the dynamics of the pro-

---

<sup>14</sup> The possibilities of inter-jurisdictional asymmetric games has received increasing attention. Shroder (1995) results did not confirm the hypothesis, while Figlio et al (1998) nuanced it. Other studies reveal that there is a positive effect between the growth in welfare expenditure in a specific area and neighbouring areas (Case, Hines and Rosen, 1993, and Baicker, 2000). In the most complete synthesis to date Brueckner (1998) finds more arguments to confirm the hypothesis than those used to reject it.

grammes could lead to the existence of a duration-effect that would limit the possible influence of the factors reviewed. Some authors have developed autoregressive dynamic models that incorporate a lagged endogenous variable (Bartik and Eberts, 1999; Figlio and Ziliak, 1999; Ziliak et al., 2000; and Klerman and Haider, 2000). These aim to capture possible factors that could have an influence on the welfare caseload figures for extended periods of time. Additionally, evidence exists of a possible transmission of behaviour patterns from generation to generation that could facilitate benefiting from the programmes. If the correlation between the historical participation of parents and children reflecting behavioural ties is not spurious, the factors that led previous generations to participate in programmes of this sort could lead to future generations continuing to depend on such welfare benefits<sup>15</sup>.

## 2. DATA

### 2.1. The IMI Programme

The data used in this study correspond to the minimum income programme implemented by one of the Spanish regions (*Madrid*), known as IMI. This is a welfare programme that attempts to incorporate active components to traditional cash benefits and is in keeping with the reforms developed in most European countries. More specifically, the programme attempts to provide general coverage to situations of poverty through two complementary strategies that are inter-linked. On the one hand, it aims to provide a basic level of economic protection and, on the other, it endeavours to carry out measures to favour the socio-economic integration of individuals and households finding themselves in situations of social exclusion. The IMI's entitlement conditions are similar to those of other minimum income programmes. The most important of these are the existence of age limits and the obligation of having used up entitlement to other income maintenance programmes. The first criterion means that only individuals over twenty-five years of age (except those with children) can qualify for the programme. The second criterion means that it is particularly important to consider other schemes, such as unemployment benefits, in the analysis.

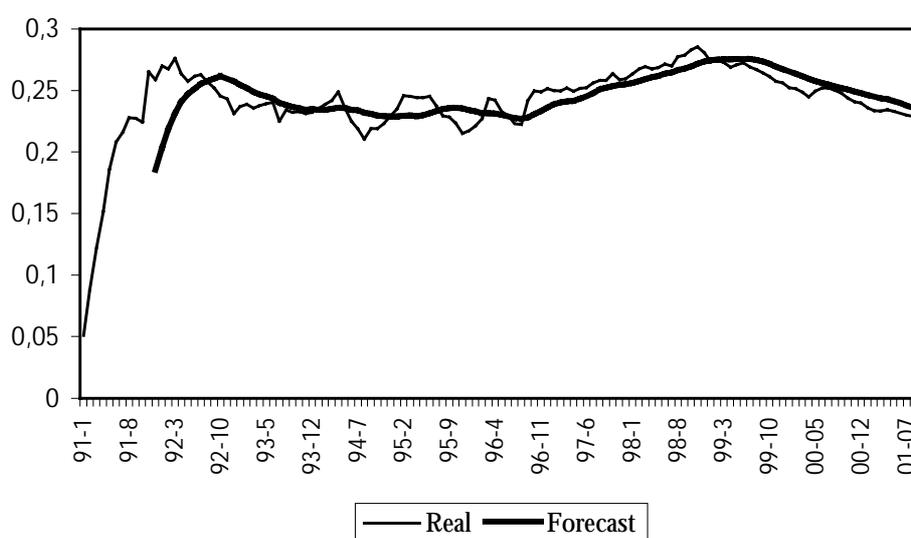
Although the programme began in the last quarter of 1990, it did not reach a significant size until the following year. The data available from January 1991 up

---

<sup>15</sup> Pepper (200) found childhood was a key factor explaining both adult participation as well as future spells duration. Gottschalk's (1996) results reveal intergenerational correlation of welfare dependency is not spurious, with significant differences among demographic groups.

the last few months of 2001 are used for the purposes of this study. This data consists of administrative entries included in the database provided by the Regional Social Services Department. The two main advantages of using this data are its exhaustiveness, because it gathers information on all the households that took part in the programme, and the availability of monthly data, which avoids the possible problem of time aggregation biases.

**Graph 1**  
**IMI CASELOADS**  
**(moving averages - order 12)**



Graph 1 shows the evolution of the programme's caseloads. Figures are presented as a percentage of the population over twenty-five years of age due to the fact that this was the age limit set as one of the programme's entitlement conditions. Data from the Labour Force Survey (EPA) were used to arrive at this percentage. The most outstanding feature of the figures' evolution is the presence of very distinct sub-periods. In the initial development phase, the programme's caseloads rose sharply until the beginning of 1993. From that moment on up to the last quarter of 1996, there were no large changes after a moderate fall was registered, although some discontinuities can be observed. From then to the end of 1998, a growing trend can once again be observed and the caseloads reached their peak. The process has been inverted in recent years with a sharp fall.

## 2.2. Choice of Variables

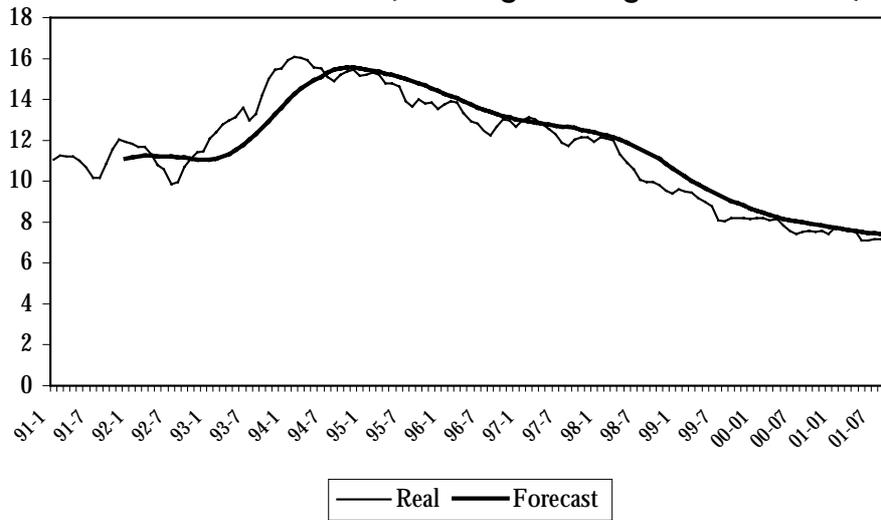
Four determining factors were chosen in keeping with the review outlined in the preceding section, namely macroeconomic conditions, changes in the pro-

gramme's basic parameters, interaction with other income maintenance programmes and changes in household structure. The monthly unemployment rate was the variable chosen to represent *macroeconomic conditions*. Data on the unemployed gathered at the National Institute of Employment's (INEM) offices allow the evolution of registered unemployment to be followed on a monthly basis. Quarterly data on the active population from the EPA was used to express unemployment in percentage terms. This approach is limited due to the existence of well-known inconsistencies in the notions of employment and unemployment used in each of these sources. In order to avoid misleading inferences we'll check the model using also quarterly unemployment rates from EPA. The available data shows that there are two clearly differentiated periods (Graph 2a). Unemployment rose sharply until mid-1994 due to a dramatic fall in the economic activity. The trend then changed and there was a sharp fall in the unemployment rate, which reached its lowest level at the end of the period under study.

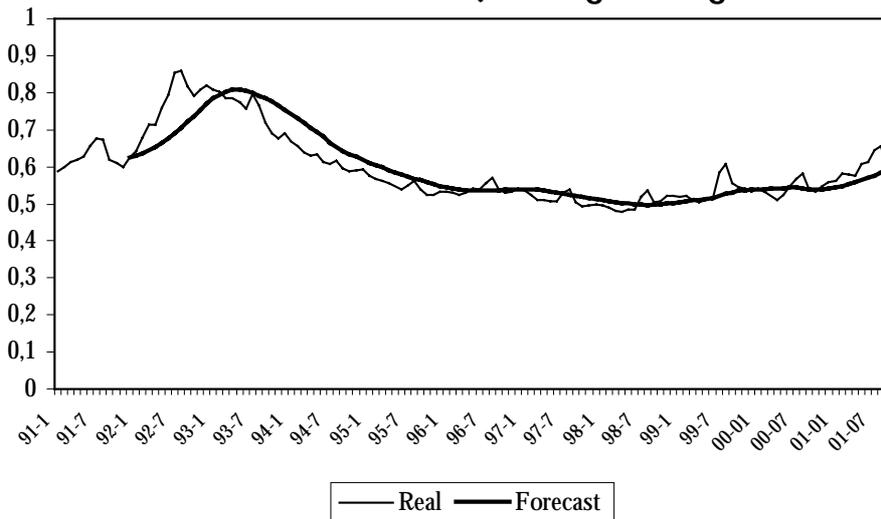
In the case of the IMI, *interaction with other programmes* may have an important explicative capacity for the programme's caseloads. If restrictive reforms limiting entitlement to unemployment protection are introduced, an increase in the IMI caseloads is likely to happen. From this viewpoint, the key variable is the coverage rate of unemployment benefit (percentage of the registered unemployed at INEM offices receiving unemployment benefit). Important changes in this rate were seen during the period under consideration (Graph 2b). An expansive phase can be observed from the beginning of the period under study that lasted until the third quarter of 1992. The following phase lasted until the first quarter of 1998 and was marked by the implementation of restrictive reforms such as the shortening of time limits and stricter requirements regarding previous contributions. Since then, the trend has once again been upward, although moderately so.

A single variable representing the programme's restrictiveness was chosen to represent *changes in the programme's parameters*. The IMI's development has been conditioned by insufficient resource allocations limiting the entry of new recipients. This also affected the process of accepting new applications and in some years led to a freeze in the benefits levels. The budgetary constraints also influenced the behaviour of professionals working in the social service's centres and led to tighter verification procedures and greater inflexibility when applying criteria for earnings disregard. In other phases, however, budgetary allocations were increased, which produced an increase in the number of recipients. It is for these reasons that total expenditure in relation to the number of new applications was chosen for consideration to measure the programme's restrictiveness.

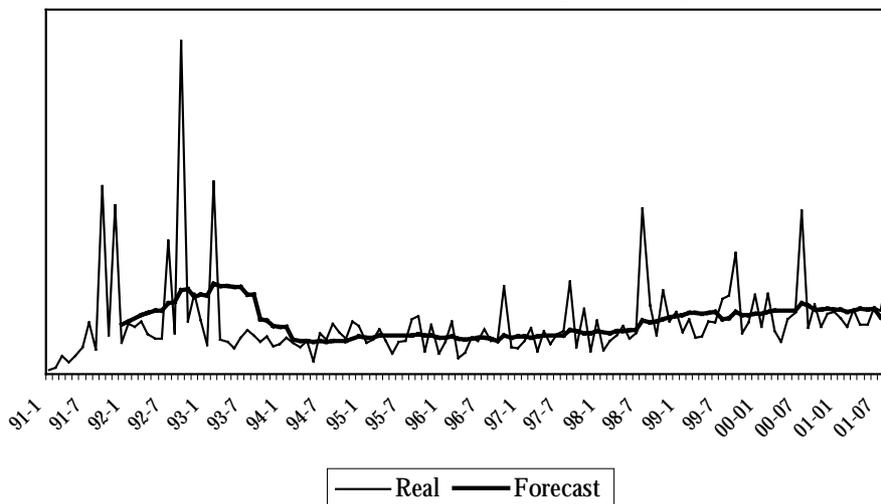
**Graph 2a**  
**UNEMPLOYMENT RATE (moving averages - order 12)**



**Graph 2b**  
**UNEMPLOYMENT COVERATE RATE (moving averages - order 12)**



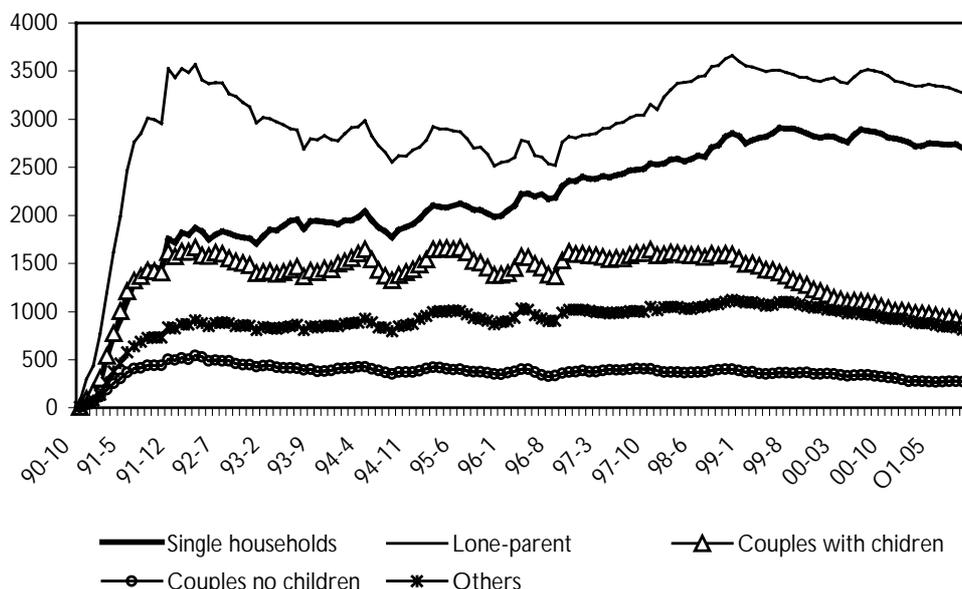
**Graph 2c**  
**EXPENDITURE / APPLICATIONS (moving averages - order 12)**



The evolution of this variable is much more irregular than that of the unemployment and coverage rates due to the fluctuations in the flow of new applications. Nonetheless, as in the cases mentioned above, smoothing the series enables different phases of change to be observed (Graph 2c). Important increases in this variable can be detected until 1993. A sharp fall was registered in the months immediately following this date and the figures levelled off between 1994 and 1998. From 1998 up to the end of the period under study, a slight and sustained rise can be observed.

The last group of variables included in the analysis are the *demographic* variables. An examination of the administrative data shows the existence of very varied groups. Almost 40% of households receiving this benefit are lone-parent households and 30% are single individuals, while couples with children make up only 10% of the total (Graph 3). Less sensitivity to changes in the economic conditions is to be expected for the first two kinds of households than for couples with children, as the latter tend to be affected by situations of temporary poverty due to a lack of household income or short-term unemployment.

**Graph 3**  
**CASELOAD BY HOUSEHOLD TYPE**



However, periodic data on the regional household structure does not exist. This prevents the demographic weight of some of these groups from being included as possible explanatory variables. The importance of the factors pointed out above suggests however the importance of including such variables in the estimation by means of alternative procedures. The basic model was estimated for the different groups including an assessment of the possible differences in the coefficients and in the overall adjustment for each group.

As was mentioned previously, a possible problem for the analysis lies in the seasonal variations that may be produced by the series' monthly nature. Graphs of the series seem to point towards an absence of seasonal periods. Various tests and the use of periodgrams have allowed us to corroborate this impression. All the observed amplitudes correspond to frequencies whose inverses (possible periods) last longer than 12 months. Hence, the conclusion can be reached that there are very long cycles and not seasonal cycles. Neither have significant coefficients for long lags been obtained when calculating simple and partial autocorrelation functions for the series. This result supports the one mentioned previously, and the representation of annual sub-series points towards the same direction. We can therefore conclude that the absence of seasonality is clear whatever testing method is employed.

### 3. MODEL SPECIFICATION AND METHODOLOGICAL DECISIONS

The starting point of the model to be estimated is a basic lineal function such as:

$$B_t = f\{P_t, C_t, PP_t, D_t\}$$

where  $B_t$  represents the ratio between the IMI's recipients and the population over twenty-five years of age in the Madrid Region.  $C_t$  is the coverage rate of unemployment benefits expressed as a ratio between the recipients of these benefits over registered unemployment.  $P_t$  is the unemployment rate, which is measured as a ratio of registered unemployment over the labour force.  $G$  represents changes in the programme's restrictiveness, summarised by means of a ratio between total expenditure and the number of applications.  $D_t$  represents demographic factors. The specification of this relation is typical of a linear function for a set of explicative variables and a random error. It can be implemented by OLS always when the series' random properties, which will be discussed below, are complied with:

$$\ln(B) = \alpha + \beta \ln(C) + \gamma \ln(P) + \delta \ln(G) + \mu \quad (1)$$

The model has been considered in logarithms to avoid the problem of a lack of stationarity in the variance. In addition, this allows the coefficients to be interpreted as elasticities. Concerning the data, monthly series of 130 values were considered covering the period between January 1991 and September 2001. The absence of demographic factors in the equation is due to a lack of monthly information on changes in household structure. An alternative means of incorporating these factors consists of calculating the same general model for the different kinds of households.

To avoid a possible problem of spurious association, the series' stationarity properties were analysed before implementing the model. The aim was to avoid estimating a static regression among economic series affected by common trends, which could lead to the detection of a high overall adjustment in the short-term, without there really being a cause-effect relationship in the long-term. This problem frequently occurs when a model's variables are not stationary. The Augmented Dickey-Fuller (1976) and Phillips-Perron (1998) stationarity tests were used to confirm this.

It seems necessary to verify if the four series are cointegrated and if the relationships among the variables are of long-term equilibrium if the stationarity tests are passed. The Phillips-Ouliaris (1990) and Johansen (1988) tests were used to this end. The possibility of there being cointegration among the model's variables is analysed by means of an error correction mechanism (ECM) that correctly represents the dynamic behaviour of the series. As is well known, the error correction model expresses the change present in the dependent variable as a lineal function of the changes in the explicative variables and an error correction (EC) term, represented as the initial model with one lag. Once such an adjustment is carried out, there are sufficient elements to assess the model's long-term validity. Following Engle and Granger (1987), the error correction mechanism was considered as:

$$\begin{aligned} D\text{Ln}(B) = & \alpha_1 + \alpha_2 D\text{Ln}(C) + \alpha_3 D\text{Ln}(P) + \alpha_4 D\text{Ln}(G) + \\ & + \delta_1 [\text{Ln}(B) - \beta \text{Ln}(C) - \gamma \text{Ln}(P) - \delta \text{Ln}(G)] + e \end{aligned} \quad (2)$$

where the term  $[\text{Ln}(B) - \beta \text{Ln}(C) - \gamma \text{Ln}(P) - \delta \text{Ln}(G)]$  represents the error correction rule and the first differences of the model's terms are its short-term deviations. Following a two-step estimation procedure, once the cointegration regression of the static model expressed in (1) was estimated, the second step involved using the residuals resulting ( $\hat{\mu}_t$ ) to estimate the error correction model coefficients by means of the regression:

$$D\text{Ln}(B)_t = \alpha_1 + \alpha_2 D\text{Ln}(C)_t + \alpha_3 D\text{Ln}(P)_t + \alpha_4 D\text{Ln}(G)_t + \delta \hat{\mu}_{t-1} + V_t \quad (3)$$

Apart from estimating the basic model shown in (1), different sensitivity tests and alternative models were conducted. For the first of these two objectives the model was implemented with moving averages of order 12, variation rates and quarterly data (including unemployment rates from EPA). Different options were set out as alternative specifications. The first was the possibility that there might be interactions between unemployment benefits coverage and unemployment rates. The relevant variable in this case is the percentage of unemployed individuals that do not receive any kind of welfare benefits:

$$U_t^* = (1 - C_t)P_t$$

Its inclusion in the basic model would give a simpler specification than (1):

$$\text{Ln}(\mathbf{B}) = \alpha + \beta \text{Ln}(\mathbf{U}^*) + \gamma \text{Ln}(\mathbf{G}) + \mu \quad (4)$$

A second alternative includes the use of time dummies in an attempt to capture the specific effect of some of the reforms made to the programme's parameters during the period under study. More specifically, two variables were added to the model. These tried to estimate the effect caused by the implementation of new rules in 1993 to make the programme more accessible for the homeless and the updating of benefits made in 1999:

$$\text{Ln}(\mathbf{B}) = \alpha + \beta \text{Ln}(\mathbf{C}) + \gamma \text{Ln}(\mathbf{P}) + \delta \text{Ln}(\mathbf{G}) + \pi + \mu \quad (5)$$

where  $\pi$  is a dichotomic value that takes on the value of 1 in the relevant year and 0 during the rest of the period.

Lastly, different models were also implemented in order to add a dynamic dimension to the basic model. On the one hand, a lagged endogenous variable was added to the explanatory variables. The aim was to assess both the significance caused by the omission of relevant variables as calculating the importance of the duration-effect that could lead to the chronification of the programme dependency situations. On the other, different unemployment rate lags were incorporated to the basic model in an effort to reflect the possible existence of a delay between the moment a household enters into a situation of unemployment and the date applications are submitted. The general formula for the new specification is:

$$\begin{aligned} \text{Ln}(\mathbf{B})_t = \alpha + \sum_{j=1}^J \rho_j \text{Ln}(\mathbf{B})_{t-j} + \beta \text{Ln}(\mathbf{C})_t + \gamma \text{Ln}(\mathbf{U})_t + \\ + \sum_{k=1}^K \eta_k \text{Ln}(\mathbf{U})_{t-k} + \delta \text{Ln}(\mathbf{G})_t + \mu_t \end{aligned} \quad (6)$$

where  $j$  y  $k$  represent the lags of the endogeneous variable and the unemployment rate, while  $\rho_j$  y  $\eta_k$  represent the respective coefficients of these variables. This model was estimated by Generalized least-squares (GLS) and the auto-correlation was corrected by means of the Cochrane-Orcutt Method.

## 4. RESULTS

### 4.1. Stationarity and Order of Integration Analysis

Examining the stationarity and the order of integration of the four variables is a previous step to analysing the effects of unemployment, unemployment coverage and the programme's restrictiveness over the welfare caseloads. Hence,

each variable was tested with the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. We consider one lag because there were no residual autocorrelation problems in the adjustments. Considering a single lag in the variables is perfectly consistent with the fact that the four series can be modelled by means of an autoregressive process of order one AR(1), according to the Box and Jenkins methodology used to analyse time series. This is due to the results of the simple and partial autocorrelation functions calculated for the seasonality analysis<sup>16</sup>.

The results obtained for the Phillips-Perron test for the initial series in logarithms for integration of order zero (stationarity) allow the null hypothesis to be accepted with a confidence level of 99% (Table 1). Obtaining statistics below the critical level for time series without a constant and trend enables the four variables to be considered as nonstationary. The results of the integration of order one tests –stationarity in the series in first differences– exhibit an opposite result. All the statistics obtained are 99% significant with a constant, without a constant, and with a constant and trend. This allows the alternative hypothesis of integration of order one for the four series to be accepted.

**Table 1**  
**UNIT ROOT TESTS**

	PP <sup>1</sup>			ADF <sup>2</sup>		
	Z(t <sub>ᾱ</sub> )	Z(t <sub>ᾱ*</sub> )	Z(t <sub>ᾱ̄</sub> )	τ	τ <sub>μ</sub>	τ <sub>τ</sub>
<i>Levels</i>						
Ln(B)	-1.22	-5.99***	-5.50***	-0.69	-5.87***	-5.71***
Ln(C)	-0.39	-1.38	-1.80	-0.34	-1.60	-2.14
Ln(U)	-1.04	0.20	-1.43	-0.92	-0.22	-1.57
Ln(G)	0.37	-9.33***	-9.80***	0.19	-3.95***	-3.97**
<i>Differences</i>						
Ln(B)	-13.5***	-13.2***	-12.8***	-10.3***	-10.2***	-9.89***
Ln(C)	-8.47***	-8.43***	-8.38***	-8.63***	-8.59***	-8.55***
Ln(U)	-7.12***	-7.18***	-7.37***	-6.42***	-6.48***	-6.76***
Ln(G)	-27.1***	-27.1***	-27.1***	-7.07***	-6.99***	-6.98***

( ), (\*\*), (\*\*\*) denote significance at the 10%, 5% and 1%, respectively.

<sup>1</sup> Z(t<sub>ᾱ</sub>), Z(t<sub>ᾱ\*</sub>) and Z(t<sub>ᾱ̄</sub>) correspond to the Phillips-Perron statistics without a constant, with a constant, and with a constant and trend, respectively.

<sup>2</sup> τ, τ<sub>μ</sub> y τ<sub>τ</sub> correspond to the Augmented Dickey-Fuller statistics without a constant, with a constant, and with a constant and trend, respectively.

<sup>16</sup> There is a monotonically decreasing autocorrelation function and clear significance only in the first coefficient of the partial autocorrelation function.

The results remain robust when the series' stationarity was tested with the alternative Augmented Dickey-Fuller test. None of the series at levels without a constant was stationary, as forecasted by the Phillips-Perron statistics. In first differences, the test again obtained results like the PP test with statistics having a significativity of 99% in all cases. To sum up, the four series in logarithms are integrated of order one,  $I(1)$ , and are not integrated of order zero,  $I(0)$ . This enables the static regression of the basic model to be estimated, hence avoiding the problem that the welfare caseloads, the coverage rate, the unemployment rate and the restrictiveness indicator are affected by common trends. The likelihood therefore exists that the calculated relationship is valid for more than just the short-term.

## 4.2. Cointegration Analysis and Model Estimation

Given that the four series included in the model are integrated of the same order, the cointegration analysis allows to detect if it is possible to obtain correct estimations that are free of spurious results for the parameters that define the relations among the series in both the short as well as the long-term. Different tests were implemented to verify if the series are cointegrated. The statistics of the Phillips-Ouliaris Test (1990) are much lower than the critical values. This indicates that the null hypothesis of non-integration of the variables is rejected at the 95%. Hence, we face a model with cointegrated variables. This implies that the relationship among the variables is of long-term equilibrium. The Johansen (1998) cointegration tests also confirmed the existence of cointegration.

**Table 2**  
**RESULTS OF THE BASIC MODEL**

	Basic Model	Sensitivity Analysis		
		Moving Averages	Variation Rates	Quarterly Data
Constant	-4,598 <sup>***</sup> (-10,2) <sup>1</sup>	-4,922 <sup>***</sup> (-9,64)	-0,028 (-1,19)	-5,771 <sup>***</sup> (-8,48)
Ln(C)	-0,265 <sup>***</sup> (-2,72)	-0,331 <sup>***</sup> (-7,60)	-0,054 (-0,28)	-0,272 <sup>*</sup> (-2,01)
Ln(P)	0,125 <sup>**</sup> (1,92)	0,118 <sup>**</sup> (3,06)	0,299 <sup>***</sup> (17,5)	0,190 <sup>***</sup> (2,74)
Ln(G)	0,202 <sup>***</sup> (7,74)	0,224 <sup>***</sup> (7,43)	0,311 <sup>*</sup> (1,82)	0,272 <sup>***</sup> (6,25)
Adjusted R <sup>2</sup>	32,5	49,7	73,5	47,9

<sup>1</sup> T-statistics brackets.

(<sup>\*</sup>), (<sup>\*\*</sup>), (<sup>\*\*\*</sup>) denote significance at the 10%, 5% and 1%, respectively.

The static model is consequently valid in order to analyse the relationship among the variables under study both in the short as well as the long-term. If the model is estimated by OLS, an acceptable level of adjustment is obtained (Table 2). Although the value of the adjusted R-square is not very high, the joint significance of the model's parameters is above 99%, while the exogenous variables  $Ln(C)$  y  $Ln(G)$  are significant at the 99% and  $Ln(P)$  is significant at the 95%. Furthermore, the residuals standard error shows good capacity to forecast. The only doubts that arise are grounded in the possibility of serial autocorrelation in the residuals, which nevertheless disappears because a reasonably random structure appears in its graphic representation. This is confirmed by other tests such as the signed rank test. Another problem that could arise is multicollinearity due to the data structure and the nature of the variables chosen. However, this is not confirmed as is seemingly evidenced by the resulting condition indices. For their part, the autocorrelation function coefficients estimated for the residuals reveal the presence of homoscedastic residuals, thus avoiding a possible heteroscedasticity problem. The adjusted model also passes the sphericity tests easily, indicating that it is generally a compact model with very consistent parameters.

The coefficients' values and signs allow a response to be given to some of the questions raised in the theoretical review outlined above. Institutional factors seem to have greater weight than macroeconomic factors as determinants of changes in the programme's caseloads. However, the results show that the elasticity of the caseloads to the unemployment rate is positive. An increase of 1% in the unemployment rate could increase the caseloads by 0.125% points. In quantitative terms this is a less relevant factor than changes in the coverage rate or in the programme's restrictiveness. Hence, the behaviour of the figures is far from obeying the fluctuations of the economic cycle. Without minimising the importance of macroeconomic factors, we can affirm, however, that most of the changes can be attributed to the actions taken by policy-makers either through rule changes in social protection schemes prior to the general welfare assistance programmes or through the imposition of a more expansive or restrictive stance concerning the development of these programmes.

In any case, it is worth posing the questions of whether these results are compatible in the long-term and if they are robust in the face of possible changes in the definition of the series. An error correction model following Engle and Granger's (1987) proposal was implemented in order to answer the first of these questions. The result of the correction model adjustment is as follows:

$$D\ln(B)_t = 0,01 + 0,03 * D\ln(C)_t - 0,05 * D\ln(P)_t + 0,04 * D\ln(G)_t - 0,37 * \hat{\mu}_{t-1} + V_t$$

where  $\hat{\mu}_{t-1}$  represents the error correction mechanism. Hence the deviation adjustments given for the error correction mechanism's coefficient is 37%, an

acceptable result similar to that of other studies. At the same time, the effects caused on equilibrium by the transition from short to long-term are not very influential given that the variables affecting the variation in the error correction model exhibit very low coefficient values.

Concerning the sensitivity analysis, Table 2 adds the results by taking the series with moving averages of order 12, growth rates and quarterly unemployment rates from the Labour Force Survey. The first and latter of these models show a very similar adjustment to the one initially carried out with the series without smoothing, as is shown by the small differences in the elasticities calculated. In this case, the model's overall significance as well as that of each parameter are greater than 99%, while the increase in the percentage of total variance explained by the model increases by up to 50%. Greater variations arise when the series in growth rates are analysed because the variables lose their significance, particularly the coverage rate, which ceases to be significant.

### 4.3. Alternative Models

The limits to improving the model's explicative capacity set out above invite to consider alternative specifications that incorporate some of the proposals reviewed in previous sections. As was mentioned previously, some of the most relevant of these are adopting a dynamic perspective by considering a potential duration-effect, the introduction of lags in economic conditions, the possibility of there being interactions between unemployment and unemployment coverage, and the possible influence specific welfare reforms may have exercised on some of the programme's parameters.

An attempt has been made to analyse the first of these factors by a dynamic model that includes the dependent variable with one-period lag among the explanatory variables. The model was estimated by GLS once the autocorrelation was corrected through the Cochrane-Orcutt method. The overall adjustment of this specification seems to be acceptable with a statistically significant relationship (99%) and a high capacity to explain total variability. Nonetheless, as in other studies that use a similar dynamic specification (Ziliak et. al., 2000), the coefficients of the basic model's variables are noticeably reduced. and significance is lost in most cases.

The inclusion of the lagged dependant variable would therefore indicate the likely relevance of possible previous economic shocks. The existence of a duration effect would explain the chronification of a relevant segment of households receiving benefits with a less pronounced sensitivity to changes in the variables chosen. These results therefore indicate that other variables may exist that could help to explain variations in the caseloads. An attempt has also been made to incorporate different time lags to the unemployment rate. The idea was to

verify the importance of the possible delay between a household entering into a situation of unemployment and the start of taking steps to participate in the programme. All the estimated specifications have shown the inconsistency of the various models, which cease to be significant and have high levels of autocorrelation. Neither does the GLS estimation once autocorrelation is corrected provide better results than the basic model. On the contrary, its results are confirmed when the interaction between the unemployment rate and the coverage rate.

**Table 3**  
**RESULTS OF ALTERNATIVE MODELS**

	Dynamic Model (MCG)	Model with Interactions	Model with Time Dummies
Constant	-0.545*** (-5.17) <sup>1</sup>	-4.282*** (-11.4)	-4.670*** (-10.4)
Ln (B) <sub>t-1</sub>	0.707*** (18.0)		
Ln (C)	0.055** (-2.00)		-0.311** (-2.71)
Ln (P)	-0.001 (-0.05)		0.141** (2.05)
Ln [(1 - C)U]		0.11** (2.46)	
Ln (G)	-0.008* (1.70)	0.200*** (7.75)	0.201*** (1.24)
$\pi_{1993}$			0.072 (1.24)
$\pi_{1999}$			0.083 (1.60)
R <sup>2</sup> adjusted	75.2	31.2	33.8

<sup>1</sup> T-statistics.

( ), (\*\*), (\*\*\*) denote significance at the 10%, 5% and 1%, respectively.

The last alternative analysed was the possibility that some specific legislative changes may have had significant effect on the caseloads (implementation of initiatives to make it more accessible for the homeless in 1993 and updating of benefits in 1999). The results do not change the picture derived from the basic model's adjustment. The elasticities of the three explicative variables were maintained and the time dummies did not turn out to be significant.

#### 4.4. Results by Household Types

Some of the problems observed in explaining changes in the caseloads are due to the difficulties that arise when verifying aggregated relationships. Population participating in anti-poverty programmes is far from uniform. This points towards the possibility of there being generalisations and, more importantly, policies standardisation. The socio-economic category that most contributes to differentiating recipients is household type. The descriptive analysis outlined in the previous sections bears out the existence of well-delimited groups, such as lone-parent households, single households, couples with children and other kinds of households.

The sensitivity of each one of these groups to the economic cycle should *a priori* be different. A large proportion of lone-parent households participating in these programmes are headed by women facing considerable obstacles when entering the labour market. Concerning single households, the available data tend to point towards the accumulation of social problems that make their entry into the labour market difficult. These problems also hinder such individuals from reaching a state of personal self-sufficiency. Both of these groups are therefore more likely to suffer the effects of institutional factors than the consequences of unemployment. Couples with children find themselves in a different situation. Their entry into the programme tends usually to be a transitory situation waiting for better possibilities of re-entering the labour market.

**Table 4**  
**RESULTS OF THE BASIC MODEL BY HOUSEHOLD TYPES**

	Lone-Parent Households	Single Households	Couples with Children	Other Households
Constant	-9.183*** (-22.4) <sup>1</sup>	-11.18*** (-17.3)	-12.25*** (-25.0)	-11.58*** (-24.7)
Ln(C)	0.010 (0.11)	-0.817*** (-5.86)	-0.106 (-0.99)	-0.235** (-2.33)
Ln(P)	-0.066 (-1.12)	-0.072 (-0.77)	0.778*** (11.0)	0.351*** (5.208)
Ln(G)	0.174*** (7.37)	0.265*** (7.12)	0.188*** (6.65)	0.204*** (7.57)
R <sup>2</sup> adjusted	36.0	42.2	49.85	32.3

<sup>1</sup> T-statistics.

( ), ( ), (\*\*), (\*\*\*) denote significance at the 10%, 5% and 1%, respectively.

The results for each kind of household confirm the hypotheses mentioned above. The effects of unemployment on lone-parent households are practically

nil and are not significant. The main determining factor for increases in the number of recipients is the implementation of greater or laxer degrees of restriction as the programme evolves. Something similar occurs for single households although the model's adjustment is greater than in the previous case. On the other hand, couples with children are very sensitive to changes in the incidence of unemployment. In addition, they also have the highest adjustment of all the household types considered.

These different explanations for each kind of household can have important implications regarding how the welfare programmes are designed. While for some groups the most suitable way of influencing the caseloads would be to implement reforms in some of the basic parameters, for others the key lies in offsetting or reinforcing the effects caused by changes in macroeconomic conditions.

## 5. CONCLUSIONS

Some of the possible determinants of the changes observed in the welfare caseloads have been analysed in this study. A theoretical model incorporating many of the proposals that have been put forward in the literature was implemented. The model attempts to explain variations in the welfare caseloads figures on the basis of four basic variables: macroeconomic conditions, interactions with other welfare programmes, changes in programme parameters and changes in the demographic structure. The model was tested by applying different time series analysis techniques, which until recently have rarely been used to study interrelations among the factors mentioned above. Furthermore, new model specifications were introduced compared to previous studies, such as representing the programme's restrictiveness by means of a synthetic variable. Given the kind of data used, it is also worth underlining the importance taken on by the resulting adjustment. The data employed was of an administrative nature and covered the whole period the programme has been in operation.

The different empirical exercises carried out confirmed the validity of this kind of models to analyse welfare caseloads. The relationships traced out are consistent, both in the short as well as in the long-term, and high levels of significance were obtained for the different variables chosen. The results' consistency allows us to affirm that institutional factors carry more weight than macroeconomic factors concerning changes in the welfare caseloads. Macroeconomic determinants, though significant, were offset or reinforced by changes in the social protection schemes previous to the minimum income programme –unemployment benefits– and by the implementation of diverse levels of restriction during different phases of the economic cycle.



The implications of these results are important regarding economic decision-making at a political level. They permit the different factors involved to be differentiated and provide a greater capacity to predict future caseloads in alternative macroeconomic and budgetary scenarios. The fact that changes in regulations and structural reforms have more influence than changes in the economic cycle invites one to expect that the effects of these decisions will be maintained in the long-term independently of the changes that may occur in macroeconomic conditions. Modifications in unemployment benefit appear to be especially significant, which are conditioned by the amount of budget resources allocated.

In any case, the results obtained for the different demographic groups warn against possible generalisations when reaching conclusions. More specifically, the results warn against the standardisation of political decisions given that the effects vary considerably among the different demographic groups. Consideration should also be given to the limits that the results' sensitivity suppose to certain methodological decisions, although these are limited. The omission of some relevant factors should also be taken into account. This seems to be borne out by the results of some alternative specifications to the basic model. The difficulties involved in identifying the exact contribution made by each of the explicative factors selected must not be forgotten. Simultaneity of factors is frequent and can lead to the same potential effect on caseload figures.

Hence, there are different ways to improve upon the results and theoretical proposals presented in this study. The ever-greater availability of administrative data will undoubtedly stimulate the development of new research lines jointly considering macroeconomic fundamentals with a microeconomic analysis of household behaviour. A second way of improving the results could be based on the search for more precise modelling procedures for some of the variables chosen.

## **ACKNOWLEDGMENTS**

The authors would like to thank Juan Gabriel Rodríguez, Minoru Kunizaki and Miguel Angel Malo for their comments and suggestions. Financial and technical support from the Spanish Institute for Fiscal Studies and the Social Services Department of the Madrid Government is also gratefully acknowledged.

## BIBLIOGRAPHY

- ASHENFELTER, O. (1983): "Determining Participation in Income-Tested Social Programmes", *Journal of the American Statistical Association*, 78, 517-526.
- BAICKER, K. (2000): "The Spillover Effects of State Spending", Joint Center for Poverty Research *Working Paper* n.º 155.
- BARNOW, B. S. (1988): *Developing Models to Predict State AFDC Caseloads: A Guide for States*. Washington: Department of Health and Human Services.
- BARTIK, T., and EBERTS, R. (1999): "Examining the Effect of Industry Trends and Structure on Welfare Caseloads". In DANZIGER, S. H. (ed.) (1999): *Economic Conditions and Welfare Reform*. Michigan: Upjohn Institute for Employment Research.
- BELL, S. H. (2001): "Why Are Welfare Caseloads Falling?", The Urban Institute, *Assessing the New Federalism Discussion Papers* n.º 01-02.
- BLANK, R. M. (1989): "The Effect of Medical Need and Medicaid on AFDC Participation", *Journal of Human Resources*, 24, 55-87.
- (2001a): "Declining Caseloads/Increased Work: What Can We Conclude About the Effects of Welfare Reform", *Federal Reserve Bank of New York Economic Policy*, September 2001, 25-36.
  - (2001b): "What Causes Public Assistance Caseloads to Grow?", *Journal of Human Resources*, 36, 85-118.
- BLANK, R. M., and HASKINS, R. (eds.) (2001): *The New World of Welfare*. Washington: Brookings Institution.
- BLOOM, D., and PAVETTI, L. (2001): "Sanctions and Time Limits: State Policies, Their Implementation and Outcomes for Families". In BLANK, R. M., and HASKINS, R. (eds.): *The New World of Welfare*. Washington: Brookings Institution.
- BRUECKNER, J. K. (1998): "Welfare Reform and Interstate Welfare Competition: Theory and Evidence", Urban Institute: *Assessing the New Federalism Occasional Paper* n.º 21.
- CARD, D., and BLANK, R. (eds.) (2000): *Finding Jobs*. New York: Russell Sage Foundation.
- CASE, A. C.; HINES, J. R., and ROSEN, H. S. (1993): "Budget Spillovers and Fiscal Policy Interdependence: Evidence from the States", *Journal of Public Economics*, vol.52, 285-307.
- CONGRESSIONAL BUDGET OFFICE (1993): "Forecasting AFDC Caseloads, with an Emphasis on Economic Factors". *Washington: CBO Staff Memorandum*.

- COWELL, F. A. (1986): "Welfare Benefits and the Economics of Take-up", ESRC Programme on Taxation, Incentives and the Distribution of Income, *Discussion Paper*, n.º 89, London School of Economics.
- CROMWELL, J. (1986): "Impacts of Economic and Programmatic Changes on Medicaid Enrollments", *The Review of Economics and Statistics*, 68, 232-240.
- DANZIGER, S. H. (ed.) (1999): *Economic Conditions and Welfare Reform*. Michigan: Upjohn Institute for Employment Research.
- DICKEY, D. A., and FULLER, W. A. (1979): "Distribution of the Estimators for Autorregressive Time Series with a Unit Root". *Journal of the American Statistical Association*, 74, 427-431.
- DUCLOS, J. I. (1992): "The Take-up of State Benefits: An Application to Supplementary Benefits in Britain Using the FES". *STICERD, WSP/71*, London School of Economics.
- ELLWOOD, D. (2000): "The Impact of the Earned Income Tax Credit and Social Policy Reforms on Work, Marriage and Living Arrangements", *National Tax Journal*, 53, 1063-1106.
- ENGLE, R. F., and GRANGER, C. W. J. (1987): "Cointegration and Error Correction: Representation, Estimation and Testing". *Econometrica*, 55, 251-276.
- FIGLIO, D. N.; KOLPIN, V., and REID, W. E. (1998): "Asymmetric Policy Interaction among Subnational Governments: Do States Play Welfare Games?", Institute for Research on Poverty, *Discussion Paper* n.º 1154-98.
- FIGLIO, D. N., and ZILIAK, J. P. (1999): "Welfare Reform, the Business Cycle and the Decline in AFDC Caseloads". In DANZIGER, S. H. (ed.): *Economic Conditions and Welfare Reform*. Michigan: Upjohn Institute for Employment Research.
- FORTIN, B.; LACROIX, G., and THIBAUT, J. F. (1999): "The Interaction of UI and Welfare, and the Dynamics of Welfare Participation of Single Parents", *Canadian Public Policy*, 25, 115-132.
- GARASKY, S. (1990): "Analyzing the Effect of Massachusetts' ET Choice Program on the State's AFDC-Basic Caseload", *Evaluation Review*, 14, 701-710.
- GOTTSCHALK, P. (1996): "Is the Correlation in Welfare Participation across Generations Spurious?", *Journal of Public Economics*, 63, 1-25.
- GROGGER, J. (2000): "Time Limits and Welfare Use". National Bureau of Economic Research *Working Paper* n.º 7709.
- HECKMAN, J. E. (1993): "What Has Been Learned About Labor Supply in the Past Twenty Years?", *American Economic Review*, 83, 116-121.
- HEIKKILÄ, M.; KESKITALO, E.; PUIDE, A.; FRIDBERG, T.; HANESCH, W.; STELZER-ORTHOFFER, C.; KAZEPOV, Y., and AYALA, L. (2001): *Social Assistance in Europe. A comparative study on minimum income in seven European countries*. STAKES-European Commission.

- HOFFMAN, S. D., and DUNCAN, G. J. (1995): "The Effect of Incomes, Wages and AFDC Benefits on Marital Disruption", *Journal of Human Resources*, vol. 31, n.º 1, pp.19-41.
- HOYNES, H. (2000): "Local Labor Markets and Welfare Spells: Do Demand Conditions Matter", *The Review of Economics and Statistics*, 82, 351-368.
- JOHANSEN, S. (1988): "Statistical Analysis of Cointegrating Vectors", *Journal of Economic Dynamics and Control*, 12, 231-254.
- KEANE, M. P. (1995): "A New Idea for Welfare Reform", *Federal Reserve Bank of Minneapolis Quarterly Review*, 2-28.
- KLERMAN, J., and HAIDER, S. (2000): *A Stock-Flow Analysis of the Welfare Caseload: Insights from California Economic Conditions*. Santa Monica, CA: RAND.
- MAYER, S. E. (2000): "Why Welfare Caseloads Fluctuate: A review of research on AFDC, SSI and the Food Stamps Program". The New Zealand Treasury *Working Paper* 00/7.
- MEAD, L. M. (2001): "Governmental Quality and Welfare Reform". Institute for Research on Poverty, *Discussion Paper* n.º 1230-01.
- MOFFITT, R. (1992): "Incentive Effects of the U.S. Welfare System: A Review", *Journal of Economic Literature*, 30, 1-61.
- (1999): "The Effect of Pre-PRWORA Waivers on AFDC Caseloads and Female Earnings, Income and Labour Force Participation". In Danziger, S.H. (ed.) (1999): *Economic Conditions and Welfare Reform*. Michigan: Upjohn Institute for Employment Research.
- MOFFITT, R., and PAVETTI, L.(2000): "Time limits". In Card, D. y Blank, R. (eds.): *Finding Jobs*. New York: Russell Sage Foundation.
- MOFFIT, R., and WOLFE, B. (1992): "The Effect of the Medicaid Program on Welfare Participation and Labour Supply", *Review of Economics and Statistics*, 74, 615-626.
- PEPPER, J. V. (2000): "The Intergenerational Transmission of Welfare Receipt: A Nonparametric Bounds Analysis", *The Review of Economics and Statistics*, 82, 472-488.
- PHILLIPS, P. C. B., and PERRON, P. (1988): "Testing for a unit root in time series regression". *Biometrika*, 75, 335-346.
- PHILLIPS, P. C. B., and OULIARIS, S. (1990): "Asymptotic properties of residual based tests for cointegration". *Econometrica*, 58, 165-193.
- SCHOENI, R. F., and BLANK, R. M. (2000): "What Has Welfare Reform Accomplished? Impacts on Welfare Participation, Employment, Income, Poverty and Family Structure". National Bureau of Economic Research *Working Paper* n.º 7627.
- SHRODER, M. (1995): "Games the States Don't Play: Welfare Benefits and the Theory of Fiscal Federalism", *The Review of Economics and Statistics*, 77, 183-191.

- SMITH, P. K. (1993): "Welfare as a cause of poverty: A time series analysis", *Public Choice*, 75, 157-170.
- STAPLETON, D.; LIVERMORE, G., and TUCKER, A. (1997): *Determinants of AFDC Caseload Growth*. Washington: Department of Health and Human Services.
- STRAUSS, R. P. (1977): "Information and participation in a public transfer program", *Journal of Public Economics*, 8, pp.385-396.
- TURNER, M. (1999): "The Effects of Higher Minimum Wages on Welfare Reciprocity", Joint Center for Poverty Research, *WP* n.º 95.
- WINKLER, A. (1991): "The Incentive Effects of Medicaid on Women's Labour Supply", *Journal of Human Resources*, 26, 308-337.
- YELLOWITZ, A. S. (1995): "The Medicaid Notch, Labor Supply and Welfare Participation: Evidence from Eligibility Expansions". *Quarterly Journal of Economics*, 105, 909-940.
- ZILIAK, J.; FIGLIO, D. N.; DAVIS, E. E., and CONNOLLY, L. (2000): "Accounting for the Decline in AFDC Caseloads: Welfare Reform or the Economy?", *Journal of Human Resources*, 35, 570-586.
- ZILIAK, J. P.; GUNDERSEN, C., and FIGLIO, D. N. (2000): "Welfare Reform and Food Stamp Caseload Dynamics", Institute for Research on Poverty Discussion Paper n.º 1215-00.

## ***NORMAS DE PUBLICACIÓN DE PAPELES DE TRABAJO DEL INSTITUTO DE ESTUDIOS FISCALES***

Esta colección de *Papeles de Trabajo* tiene como objetivo ofrecer un vehículo de expresión a todas aquellas personas interesadas en los temas de Economía Pública. Las normas para la presentación y selección de originales son las siguientes:

1. Todos los originales que se presenten estarán sometidos a evaluación y podrán ser directamente aceptados para su publicación, aceptados sujetos a revisión, o rechazados.
2. Los trabajos deberán enviarse por duplicado a la Subdirección de Estudios Tributarios. Instituto de Estudios Fiscales. Avda. Cardenal Herrera Oria, 378. 28035 Madrid.
3. La extensión máxima de texto escrito, incluidos apéndices y referencias bibliográficas será de 7000 palabras.
4. Los originales deberán presentarse mecanografiados a doble espacio. En la primera página deberá aparecer el título del trabajo, el nombre del autor(es) y la institución a la que pertenece, así como su dirección postal y electrónica. Además, en la primera página aparecerá también un abstract de no más de 125 palabras, los códigos JEL y las palabras clave.
5. Los epígrafes irán numerados secuencialmente siguiendo la numeración arábica. Las notas al texto irán numeradas correlativamente y aparecerán al pie de la correspondiente página. Las fórmulas matemáticas se numerarán secuencialmente ajustadas al margen derecho de las mismas. La bibliografía aparecerá al final del trabajo, bajo la inscripción "Referencias" por orden alfabético de autores y, en cada una, ajustándose al siguiente orden: autor(es), año de publicación (distinguiendo a, b, c si hay varias correspondientes al mismo autor(es) y año), título del artículo o libro, título de la revista en cursiva, número de la revista y páginas.
6. En caso de que aparezcan tablas y gráficos, éstos podrán incorporarse directamente al texto o, alternativamente, presentarse todos juntos y debidamente numerados al final del trabajo, antes de la bibliografía.
7. En cualquier caso, se deberá adjuntar un disquete con el trabajo en formato word. Siempre que el documento presente tablas y/o gráficos, éstos deberán aparecer en ficheros independientes. Asimismo, en caso de que los gráficos procedan de tablas creadas en excel, estas deberán incorporarse en el disquete debidamente identificadas.

***Junto al original del Papel de Trabajo se entregará también un resumen de un máximo de dos folios que contenga las principales implicaciones de política económica que se deriven de la investigación realizada.***

## ***PUBLISHING GUIDELINES OF WORKING PAPERS AT THE INSTITUTE FOR FISCAL STUDIES***

This serie of *Papeles de Trabajo* (working papers) aims to provide those having an interest in Public Economics with a vehicle to publicize their ideas. The rules governing submission and selection of papers are the following:

1. The manuscripts submitted will all be assessed and may be directly accepted for publication, accepted with subjections for revision or rejected.
2. The papers shall be sent in duplicate to Subdirección General de Estudios Tributarios (The Deputy Direction of Tax Studies), Instituto de Estudios Fiscales (Institute for Fiscal Studies), Avenida del Cardenal Herrera Oria, nº 378, Madrid 28035.
3. The maximum length of the text including appendices and bibliography will be no more than 7000 words.
4. The originals should be double spaced. The first page of the manuscript should contain the following information: (1) the title; (2) the name and the institutional affiliation of the author(s); (3) an abstract of no more than 125 words; (4) JEL codes and keywords; (5) the postal and e-mail address of the corresponding author.
5. Sections will be numbered in sequence with arabic numerals. Footnotes will be numbered correlatively and will appear at the foot of the corresponding page. Mathematical formulae will be numbered on the right margin of the page in sequence. Bibliographical references will appear at the end of the paper under the heading "References" in alphabetical order of authors. Each reference will have to include in this order the following terms of references: author(s), publishing date (with an a, b or c in case there are several references to the same author(s) and year), title of the article or book, name of the journal in italics, number of the issue and pages.
6. If tables and graphs are necessary, they may be included directly in the text or alternatively presented altogether and duly numbered at the end of the paper, before the bibliography.
7. In any case, a floppy disk will be enclosed in Word format. Whenever the document provides tables and/or graphs, they must be contained in separate files. Furthermore, if graphs are drawn from tables within the Excell package, these must be included in the floppy disk and duly identified.

***Together with the original copy of the working paper a brief two-page summary highlighting the main policy implications derived from the re-search is also requested.***

## ÚLTIMOS PAPELES DE TRABAJO EDITADOS POR EL INSTITUTO DE ESTUDIOS FISCALES

### 2000

- 1/00 Crédito fiscal a la inversión en el impuesto de sociedades y neutralidad impositiva: Más evidencia para un viejo debate.  
*Autor:* Desiderio Romero Jordán.  
Páginas: 40.
- 2/00 Estudio del consumo familiar de bienes y servicios públicos a partir de la encuesta de presupuestos familiares.  
*Autores:* Ernesto Carrillo y Manuel Tamayo.  
Páginas: 40.
- 3/00 Evidencia empírica de la convergencia real.  
*Autores:* Lorenzo Escot y Miguel Ángel Galindo.  
Páginas: 58.

### *Nueva Época*

- 4/00 The effects of human capital depreciation on experience-earnings profiles: Evidence salaried spanish men.  
*Autores:* M. Arrazola, J. de Hevia, M. Risueño y J. F. Sanz.  
Páginas: 24.
- 5/00 Las ayudas fiscales a la adquisición de inmuebles residenciales en la nueva Ley del IRPF: Un análisis comparado a través del concepto de coste de uso.  
*Autor:* José Félix Sanz Sanz.  
Páginas: 44.
- 6/00 Las medidas fiscales de estímulo del ahorro contenidas en el Real Decreto-Ley 3/2000: análisis de sus efectos a través del tipo marginal efectivo.  
*Autores:* José Manuel González Páramo y Nuria Badenes Plá.  
Páginas: 28.
- 7/00 Análisis de las ganancias de bienestar asociadas a los efectos de la Reforma del IRPF sobre la oferta laboral de la familia española.  
*Autores:* Juan Prieto Rodríguez y Santiago Álvarez García.  
Páginas 32.
- 8/00 Un marco para la discusión de los efectos de la política impositiva sobre los precios y el *stock* de vivienda.  
*Autor:* Miguel Ángel López García.  
Páginas 36.
- 9/00 Descomposición de los efectos redistributivos de la Reforma del IRPF.  
*Autores:* Jorge Onrubia Fernández y María del Carmen Rodado Ruiz.  
Páginas 24.
- 10/00 Aspectos teóricos de la convergencia real, integración y política fiscal.  
*Autores:* Lorenzo Escot y Miguel Ángel Galindo.  
Páginas 28.

## 2001

- 1/01 Notas sobre desagregación temporal de series económicas.  
*Autor:* Enrique M. Quilis.  
Páginas 38.
- 2/01 Estimación y comparación de tasas de rendimiento de la educación en España.  
*Autores:* M. Arrazola, J. de Hevia, M. Risueño y J. F. Sanz.  
Páginas 28.
- 3/01 Doble imposición, "efecto clientela" y aversión al riesgo.  
*Autores:* Antonio Bustos Gisbert y Francisco Pedraja Chaparro.  
Páginas 34.
- 4/01 Non-Institutional Federalism in Spain.  
*Autor:* Joan Rosselló Villalonga.  
Páginas 32.
- 5/01 Estimating utilisation of Health care: A groupe data regression approach.  
*Autora:* Mabel Amaya Amaya.  
Páginas 30.
- 6/01 Shapley inequality descomposition by factor components.  
*Autores:* Mercedes Sastre y Alain Trannoy.  
Páginas 40.
- 7/01 An empirical analysis of the demand for physician services across the European Union.  
*Autores:* Sergi Jiménez Martín, José M. Labeaga y Maite Martínez-Granado.  
Páginas 40.
- 8/01 Demand, childbirth and the costs of babies: evidence from spanish panel data.  
*Autores:* José M.<sup>a</sup> Labeaga, Ian Preston y Juan A. Sanchis-Llopis.  
Páginas 56.
- 9/01 Imposición marginal efectiva sobre el factor trabajo: Breve nota metodológica y comparación internacional.  
*Autores:* Desiderio Romero Jordán y José Félix Sanz Sanz.  
Páginas 40.
- 10/01 A non-parametric decomposition of redistribution into vertical and horizontal components.  
*Autores:* Irene Perrote, Juan Gabriel Rodríguez y Rafael Salas.  
Páginas 28.
- 11/01 Efectos sobre la renta disponible y el bienestar de la deducción por rentas ganadas en el IRPF.  
*Autora:* Nuria Badenes Plá.  
Páginas 28.
- 12/01 Seguros sanitarios y gasto público en España. Un modelo de microsimulación para las políticas de gastos fiscales en sanidad.  
*Autor:* Ángel López Nicolás.  
Páginas 40.
- 13/01 A complete parametrical class of redistribution and progressivity measures.  
*Autores:* Isabel Rabadán y Rafael Salas.  
Páginas 20.
- 14/01 La medición de la desigualdad económica.  
*Autor:* Rafael Salas.  
Páginas 40.

- 15/01 Crecimiento económico y dinámica de distribución de la renta en las regiones de la UE: un análisis no paramétrico.  
*Autores:* Julián Ramajo Hernández y María del Mar Salinas Jiménez.  
Páginas 32.
- 16/01 La descentralización territorial de las prestaciones asistenciales: efectos sobre la igualdad.  
*Autores:* Luis Ayala Cañón, Rosa Martínez López y Jesus Ruiz-Huerta.  
Páginas 48.
- 17/01 Redistribution and labour supply.  
*Autores:* Jorge Onrubia, Rafael Salas y José Félix Sanz.  
Páginas 24.
- 18/01 Medición de la eficiencia técnica en la economía española: El papel de las infraestructuras productivas.  
*Autoras:* M.<sup>a</sup> Jesús Delgado Rodríguez e Inmaculada Álvarez Ayuso.  
Páginas 32.
- 19/01 Inversión pública eficiente e impuestos distorsionantes en un contexto de equilibrio general.  
*Autores:* José Manuel González-Páramo y Diego Martínez López.  
Páginas 28.
- 20/01 La incidencia distributiva del gasto público social. Análisis general y tratamiento específico de la incidencia distributiva entre grupos sociales y entre grupos de edad.  
*Autor:* Jorge Calero Martínez.  
Páginas 36.
- 21/01 Crisis cambiarias: Teoría y evidencia.  
*Autor:* Óscar Bajo Rubio.  
Páginas 32.
- 22/01 Distributive impact and evaluation of devolution proposals in Japanese local public finance.  
*Autores:* Kazuyuki Nakamura, Minoru Kunizaki y Masanori Tahira.  
Páginas 36.
- 23/01 El funcionamiento de los sistemas de garantía en el modelo de financiación autonómica.  
*Autor:* Alfonso Utrilla de la Hoz.  
Páginas 48.
- 24/01 Rendimiento de la educación en España: Nueva evidencia de las diferencias entre Hombres y Mujeres.  
*Autores:* M. Arrazola y J. de Hevia.  
Páginas 36.
- 25/01 Fecundidad y beneficios fiscales y sociales por descendientes.  
*Autora:* Anabel Zárate Marco.  
Páginas 52.
- 26/01 Estimación de precios sombra a partir del análisis Input-Output: Aplicación a la economía española.  
*Autora:* Guadalupe Souto Nieves.  
Páginas 56.
- 27/01 Análisis empírico de la depreciación del capital humano para el caso de las Mujeres y los Hombres en España.  
*Autores:* M. Arrazola y J. de Hevia.  
Páginas 28.

- 28/01 Equivalence scales in tax and transfer policies.  
*Autores:* Luis Ayala, Rosa Martínez y Jesús Ruiz-Huerta.  
Páginas 44.
- 29/01 Un modelo de crecimiento con restricciones de demanda: el gasto público como amortiguador del desequilibrio externo.  
*Autora:* Belén Fernández Castro.  
Páginas 44.
- 30/01 A bi-stochastic nonparametric estimator.  
*Autores:* Juan G. Rodríguez y Rafael Salas.  
Páginas 24.

## 2002

- 1/02 Las cestas autonómicas.  
*Autores:* Alejandro Esteller, Jorge Navas y Pilar Sorribas.  
Páginas 72.
- 2/02 Evolución del endeudamiento autonómico entre 1985 y 1997: la incidencia de los Escenarios de Consolidación Presupuestaria y de los límites de la LOFCA.  
*Autores:* Julio López Laborda y Jaime Vallés Giménez.  
Páginas 60.
- 3/02 Optimal Pricing and Grant Policies for Museums.  
*Autores:* Juan Prieto Rodríguez y Víctor Fernández Blanco.  
Páginas 28.
- 4/02 El mercado financiero y el racionamiento del endeudamiento autonómico.  
*Autores:* Nuria Alcalde Fradejas y Jaime Vallés Giménez.  
Páginas 36.
- 5/02 Experimentos secuenciales en la gestión de los recursos comunes.  
*Autores:* Lluís Bru, Susana Cabrera, C. Mónica Capra y Rosario Gómez.  
Páginas 32.
- 6/02 La eficiencia de la universidad medida a través de la función de distancia: Un análisis de las relaciones entre la docencia y la investigación.  
*Autores:* Alfredo Moreno Sáez y David Trillo del Pozo.  
Páginas 40.
- 7/02 Movilidad social y desigualdad económica.  
*Autores:* Juan Prieto-Rodríguez, Rafael Salas y Santiago Álvarez-García.  
Páginas 32.
- 8/02 Modelos BVAR: Especificación, estimación e inferencia.  
*Autor:* Enrique M. Quilis.  
Páginas 44.
- 9/02 Imposición lineal sobre la renta y equivalencia distributiva: Un ejercicio de microsimulación.  
*Autores:* Juan Manuel Castañer Carrasco y José Félix Sanz Sanz.  
Páginas 44.
- 10/02 The evolution of income inequality in the European Union during the period 1993-1996.  
*Autores:* Santiago Álvarez García, Juan Prieto-Rodríguez y Rafael Salas.  
Páginas 36.

- 11/02 Una descomposición de la redistribución en sus componentes vertical y horizontal: Una aplicación al IRPF.  
*Autora:* Irene Perrote.  
Páginas 32.
- 12/02 Análisis de las políticas públicas de fomento de la innovación tecnológica en las regiones españolas.  
*Autor:* Antonio Fonfría Mesa.  
Páginas 40.
- 13/02 Los efectos de la política fiscal sobre el consumo privado: nueva evidencia para el caso español.  
*Autores:* Agustín García y Julián Ramajo.  
Páginas 52.
- 14/02 Micro-modelling of retirement behavior in Spain.  
*Autores:* Michele Boldrin, Sergi Jiménez-Martín y Franco Peracchi.  
Páginas 96.
- 15/02 Estado de salud y participación laboral de las personas mayores.  
*Autores:* Juan Prieto Rodríguez, Desiderio Romero Jordán y Santiago Álvarez García.  
Páginas 40.
- 16/02 Technological change, efficiency gains and capital accumulation in labour productivity growth and convergence: an application to the Spanish regions.  
*Autora:* M.<sup>a</sup> del Mar Salinas Jiménez.  
Páginas 40.
- 17/02 Déficit público, masa monetaria e inflación. Evidencia empírica en la Unión Europea.  
*Autor:* César Pérez López.  
Páginas 40.
- 18/02 Tax evasion and relative contribution.  
*Autora:* Judith Panadés i Martí.  
Páginas 28.
- 19/02 Fiscal policy and growth revisited: the case of the Spanish regions.  
*Autores:* Óscar Bajo Rubio, Carmen Díaz Roldán y M.<sup>a</sup> Dolores Montávez Garcés.  
Páginas 28.
- 20/02 Optimal endowments of public investment: an empirical analysis for the Spanish regions.  
*Autores:* Óscar Bajo Rubio, Carmen Díaz Roldán y M.<sup>a</sup> Dolores Montávez Garcés.  
Páginas 28.
- 21/02 Régimen fiscal de la previsión social empresarial. Incentivos existentes y equidad del sistema.  
*Autor:* Félix Domínguez Barrero.  
Páginas 52.
- 22/02 Poverty statics and dynamics: does the accounting period matter?.  
*Autores:* Olga Cantó, Coral del Río y Carlos Gradín.  
Páginas 52.
- 23/02 Public employment and redistribution in Spain.  
*Autores:* José Manuel Marqués Sevillano y Joan Rosselló Villalonga.  
Páginas 36.

- 24/02 La evolución de la pobreza estática y dinámica en España en el periodo 1985-1995.  
*Autores:* Olga Cantó, Coral del Río y Carlos Gradín.  
Páginas: 76.
- 25/02 Estimación de los efectos de un "tratamiento": una aplicación a la Educación superior en España.  
*Autores:* M. Arrazola y J. de Hevia.  
Páginas 32.
- 26/02 Sensibilidad de las estimaciones del rendimiento de la educación a la elección de instrumentos y de forma funcional.  
*Autores:* M. Arrazola y J. de Hevia.  
Páginas 40.
- 27/02 Reforma fiscal verde y doble dividendo. Una revisión de la evidencia empírica.  
*Autor:* Miguel Enrique Rodríguez Méndez.  
Páginas 40.
- 28/02 Productividad y eficiencia en la gestión pública del transporte de ferrocarriles implicaciones de política económica.  
*Autor:* Marcelino Martínez Cabrera.  
Páginas 32.
- 29/02 Building stronger national movie industries: The case of Spain.  
*Autores:* Víctor Fernández Blanco y Juan Prieto Rodríguez.  
Páginas 52.
- 30/02 Análisis comparativo del gravamen efectivo sobre la renta empresarial entre países y activos en el contexto de la Unión Europea (2001).  
*Autora:* Raquel Paredes Gómez.  
Páginas 48.
- 31/02 Voting over taxes with endogenous altruism.  
*Autor:* Joan Esteban.  
Páginas 32.
- 32/02 Midiendo el coste marginal en bienestar de una reforma impositiva.  
*Autor:* José Manuel González-Páramo.  
Páginas 48.
- 33/02 Redistributive taxation with endogenous sentiments.  
*Autores:* Joan Esteban y Laurence Kranich.  
Páginas 40.
- 34/02 Una nota sobre la compensación de incentivos a la adquisición de vivienda habitual tras la reforma del IRPF de 1998.  
*Autores:* Jorge Onrubia Fernández, Desiderio Romero Jordán y José Félix Sanz Sanz.  
Páginas 36.
- 35/02 Simulación de políticas económicas: los modelos de equilibrio general aplicado.  
*Autor:* Antonio Gómez Gómez-Plana.  
Páginas 36.

## 2003

- 1/03 Análisis de la distribución de la renta a partir de funciones de cuantiles: robustez y sensibilidad de los resultados frente a escalas de equivalencia.  
*Autores:* Marta Pascual Sáez y José María Sarabia Alegría.  
Páginas 56.

2/03 Macroeconomic conditions, institutional factors and demographic structure: What causes welfare caseloads?

*Autores:* Luis Ayala y César Perez.

Páginas 44.