Temporary Contracts and Labour Market Segmentation in Spain:
An Employment-Rent Approach

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Deregulation through temporary employment has generated important inequalities in the Spanish labour market. The article presents a theoretical model as well as empirical evidence to explain this process. The main thrust of the model is seeing labour market structures as always being the result of micro-level strategies of employers and employees over employment rents. The employment-rent approach focuses on the impact of deregulation through temporary employment on the employment-rent optimization strategies of both employers and employees at the micro-level. Drawing on recent developments in labour economics, two main micro-level effects of deregulation are identified, the so-called 'incentive' and 'buffer' mechanisms. These two mechanisms are expected to reinforce each other until an equilibrium state in the segmentation process is reached. The employment-rent model is tested using data from the Spanish Labour Force Survey for the period 1987–1997, as well as data on wages drawn from the Survey on Class Structure, Class Consciousness and Class Biography (1991). The evidence proves consistent with the predictions of the model.

Introduction

In the last 15 years, temporary contracts have grown considerably in all European countries. Within Europe, however, Spain stands out as having by far the highest rate of temporary employment. Since the early 1990s, the rate of temporary employment in Spain has been almost three times the European average (see Figure 1). Why is temporary employment so high in Spain? What consequences has the introduction of temporary contracts had on the Spanish labour market? How has it affected individual labour market opportunities?

Temporary contracts were introduced in Spain in 1984 in a bid to reduce unemployment—which had just risen to over 20 per cent of the active population—by making the labour market more flexible.[1] The flexibilization strategy implemented in 1984 is a paradigmatic example of what Esping-Andersen (2000) has

called two-tier selective labour market policies. Two-tier policies deregulate conditions for some workers, but not for others. The 1984 reform targeted new entrants in employment, while workers on permanent contracts continued to enjoy the privileges of rigid employment security legislation, which imposes very high dismissal costs for permanent employment. In very sharp contrast to dismissal costs for permanent workers, temporary contracts introduced in 1984 entailed very low termination costs. Moreover, most of them included a termination date, after which the employer was legally obliged either to convert the temporary contract into a permanent one or to put an end to the employment relationship.

By 1997, as much as one-third of the employed Spanish workforce held temporary contracts and yet Spain showed the same levels of unemployment as in
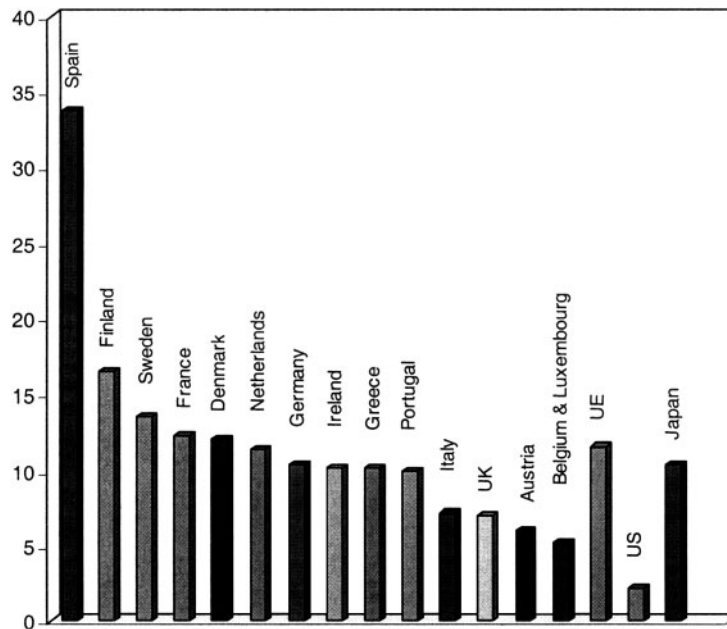
Source: Eurostat, 1996

Figure 1. *Rates of temporary employment in OECD countries (1996)*

1984. Deregulation through temporary employment failed to achieve its goal of reducing the unemployment rate on a long-term basis because it failed to generate stable employment. Instead, it gave rise to important inequalities among equivalent-productivity workers. The failure of the Spanish 'experiment' goes, therefore, hand in hand with its unanticipated segmenting consequences.[2] This article presents an explanatory model that can help us understand the segmenting impact of two-tier deregulation in Spain. It also provides empirical evidence that proves consistent with the causal mechanisms proposed in the model.

The study of temporary employment in Spain has been approached mainly from the perspective of segmentation theories (for a review see Polavieja, 2001: ch. 1). Segmentation theories stress the role of uncertainty in the product markets, technological change, and the correspondence between dualistic tendencies at the industrial level and labour market structures (e.g. see Doeringer and Piore, 1971; Edwards *et al.*, 1975; Gordon *et al.*, 1982). Yet these theories remain largely silent with respect to the crucial role that

institutional regulation plays in the stratification of labour markets. The bulk of the argument in segmentation models takes place at the macro-level, where the emphasis on historical forces prevents the discussion of the micro-level mechanisms of segmentation. What seems missing in the existing sociological analyses of the Spanish case is, therefore, an explanation that (*a*) incorporates the institutional context and (*b*) links segmentation to the economically rational behaviour of individual firms and workers (Polavieja, 2001: 12–18).

The explanatory model defended in this article is based on two main ideas. First, that the analysis of labour market structures in contemporary capitalism must take the regulatory context very seriously (Esping-Andersen, 1999) and, second, that the impact of deregulation on macro-level outcomes (i.e. labour market structures) should be explained through—or at least with reference to—micro-level behaviour. The main contribution of the article is in combining both ideas in an explanation of the segmenting consequences of temporary employment in Spain.

The model draws on Aage Sorensen's theorization of employment rents (Sorensen, 1994; 2000) as well as on various contributions in the field of labour economics. It rests on three basic propositions. First, that labour market segmentation can be usefully thought of as the process that creates structured patterns in the distribution of individual labour market opportunities (LMOs) of equivalent-productivity workers. Second, that in order to identify and understand the mechanisms that produce labour market segments better it is useful to consider the employment rents that are generated in employment relationships. Third and finally, that the analysis of the impact of regulatory change on LMOs—and therefore the analysis of the segmenting consequences of temporary employment in Spain—should focus on the effects that this change has had on the rational strategies of both employers and employees over employment rents.

The article is divided into three sections. The first section presents the theoretical model. The second section tests it using data from the Spanish Labour Force Survey (LFS) for the period 1987–1997,[3] as well as data on wages drawn from the Survey on Class Structure, Class Consciousness and Class Biography (CSCCCB) carried out in 1991 ($n = 6000$) (Cabaña *et al.*, 1993). The article concludes with a discussion of the main findings.

The Model: Labour Market Opportunities, Segmentation and Employment Rents

Preliminary Definitions

Inequalities among employees originating in the labour market are understood here as persistent patterns (or structures) in the distribution of individual LMOs. Two types of inequalities can be distinguished: 'vertical' and 'horizontal' inequalities. Vertical inequalities are due to differences in workers' productivity. Vertical inequalities are generated by the very functioning of demand and supply forces in the labour market. They are *not* considered as part of the segmentation concept in this model. Segmentation, as defined here, refers only to the process(es) that generate(s) horizontal inequalities in the distribution of LMOs, that is, inequalities among workers who

have equivalent levels of productivity. Structured patterns of inequality in the distribution of LMOs of equivalent-productivity workers can be referred to as 'segments' at the aggregate level.

Two types of labour market opportunities are considered: (i) employment chances and (ii) wages per effort. Employment chances depend, in turn, on two kinds of opportunities: (*a*) opportunities for access into employment, and (*b*) opportunities for control over the termination of one's employment relationship (i.e. job security). It seems clear that workers will be better off the greater their chances of finding a job (if they are unemployed) and the smaller the chances of involuntarily losing it (if they are employed). Also, employees will be better off the greater the wages they can obtain for the same amount of effort. Employment chances and wages (per effort) thus define the fundamental aspects of LMOs, which are the immediate source of personal wealth obtained in the labour market.

Employment Rents

The main thrust of the employment-rent approach is to view segmentation as always being the result of the micro-level strategies of employers and employees over employment rents. The concept of employment rents is, therefore, crucial in the model.

Rents can be defined as 'advantages provided by assets that produce a payment that exceeds the amount needed to bring the asset into employment' (Sorensen, 1994: 509). A useful way of conceptualizing employment rents (ER) for employees is to see them as the difference between the actual value employees receive for their labour effort in particular employment relationships (Va), and the value they would obtain in the perfectly competitive labour market depicted by the orthodox neo-classical model (Vc). Hence, following Sorensen (2000):

$$ER = Va - Vc$$

where Vc is given by the theory of marginal productivity and depends exclusively on technological factors.

It is obvious that employed workers will maximize their LMOs the higher the employment rents they are capable of obtaining within their employment relationship. Conversely, employers will maximize their profit in the employment relationship if they can reduce employees' rents so as to make the actual

value workers receive for their labour effort as close as it is possible to the competitive value. Employers and employees have, in this sense, clear conflicting interests over employment rents.

Employed workers' rent-optimization strategies can also collide with unemployed workers' opportunities for access into employment. This is the central idea behind insider–outsider models, which see involuntary unemployment primarily 'as a conflict of interest between the insiders and the outsiders' (Solow, 1985; Lindbeck and Snower, 1986: 235, 1988). This conflict of interests will be greatly intensified in particular institutional contexts (see below).

But how can employees maximize their employment rents? It is useful to distinguish between three main sources of employment-rent generation for employees: (i) task-specificity, which is the most immediate source of employment rents for employees and the one which has greatest organizational ramifications; (ii) workers' collective action, which generates monopoly rents for workers; and (iii) institutional regulation, which can generate new rents for employees as well as improve their rent-optimization capacity. The three sources of rent generation are in reality interwoven so that the relative importance of each of these factors might be extremely difficult to assess in practice. Yet accounting for the different sources of rent generation is analytically pertinent as each of them has implications for the distribution of LMOs and hence for segmentation as defined above.

Task-specificity is an endogenous source of rent generation, since rents due to task-specificity are generated 'naturally' as a result of 'unconstrained voluntary exchanges between rationally utility maximizing individuals or collective agents' (Buechtemann, 1993: 45). Task specificity rents would therefore exist even in unregulated markets. There are two analytically-distinguishable dimensions of task-specificity rents: asset-specificity and monitoring costs. Asset-specificity refers to that specific human capital which is required in order to perform a particular task in a given firm and which has considerably lower value in a different organizational context. High asset-specificity tasks involve irreversible investments in the employment relationship for both employers and employees as it implies that both parties have to invest in the transformation of employees' general human capital into an organization-and-task-specific one.[4] These investments can be thought of as transaction costs

(Williamson, 1994; 1996). The existence of high transaction costs creates incentives for both parties to 'close' the employment relationship from outside competition, since dissolving the relationship would imply the loss of the investments made by both parties. Usually high asset-specificity tasks are also tasks where monitoring costs are high since the more specific the human capital required for the performance of a particular task, the more costly it will be for the employer to monitor it. Once the employment relationship has been closed to outside competition, rational employers will seek to induce high productivity by designing an incentive structure that links future rewards to current performance so as to reduce work-life rents for their employees without incurring in uneconomical productivity-measuring costs. Task-specificity thus has important organizational ramifications. John Goldthorpe (2000: ch. 10), for instance, has recently argued that employers' rational strategies to optimize on asset-specificity and productivity-measurement costs provide the rational basis for the class-differentiation of employees (see also Williamson, 1985; Sorensen, 1994; 2000; Lazear, 1995: ch. 4; Marsden, 1999).

Employees can also obtain rents without a basis in task-specificity through the collective control of the labour supply. Rents on workers' collective action have an endogenous component and an exogenous one. The endogenous component of collective-action rents reflects employees' unconstrained employment-rent optimization strategies. Workers' endogenous bargaining would take place even in unregulated contexts (i.e. contexts without trade unions or institutionalized bargaining rules). In regulated markets, however, workers' bargaining power—and therefore their rent-optimization capacity—is institutionally dependent. The exogenous component of collective action captures this institutional dimension of collective bargaining. Particular institutional features of the collective bargaining system can have a crucial impact on employees' capacity to obtain rents through collective action and, therefore, on the degree of insider–outsider segmentation.

In general, it can be affirmed that segmentation will be tempered by all the institutional factors that enhance unions' capacity to display an *inclusive* representation of workers' interests—that is, to negotiate for all workers in the labour market, not just for the permanently employed. Inclusive unionism is greatly

favoured by a centralized and co-ordinated bargaining structure as well as by open and fluid channels of communication between workers and their representatives. These channels are unlikely to exist if unions do not have a direct presence in firms. Direct presence increases the 'quality' of representation because it increases unions' accountability and favours the introduction of qualitative issues into the bargaining agenda (crucially, issues regarding employment). Neither the bargaining structure nor the kind of communication channels between workers and unions that are required for an inclusive representation of interests are present in the Spanish collective bargaining system, which is primarily based on workers' votes rather than on their affiliation (Martínez Lucio, 1993). Voters' unionism relegates the bulk of collective bargaining to the industry-level, where concern over wages greatly overshadows questions regarding employment (Jimeno and Toharia, 1994). Industry-level uncoordinated bargaining carried out by weak (and often competing) unions leave temporary and unemployed workers unprotected, thus enhancing insider–outsider tendencies in the labour market (Polavieja and Richards, 2001).

The last source of employment rents for employees is state regulation. State regulation can generate direct rents for workers without a basis in either asset specificity or bargaining power. These regulatory rents are mainly exogenous. Minimum wages, equal work for equal pay laws, regulation on working conditions and, crucially, dismissal costs are examples of state regulation that can generate direct employment rents for workers. In the Spanish case, dismissal costs are a crucial source of employment rents for permanent workers. Up until 1997, Spain had probably the most restrictive dismissal protection regulation of all EU countries (e.g. see Schömann et al., 1998). The origin of the rents based on employment protection cannot be attributed to the endogenous economic factors that give rise to task-specificity rents. Nor can we attribute—at least directly—high dismissal costs to workers' collective action, since high dismissal costs for permanent workers were originally imposed unilaterally by a dictatorial regime that prohibited free unionism and heavily repressed workers' underground organizations. After the transition to democracy, the newly legalized unions used the levels of employment protection hitherto guaranteed by the dictatorship as the cornerstone of workers' rights.

Thus, they played an active role in ensuring that such levels of job protection were reflected in the Workers' Statute of 1980.

The implications of this discussion for the analysis of the segmenting effects of two-tier deregulation in Spain are straightforward: The implementation of deregulation through temporary employment in an institutional context characterized by non-inclusive bargaining and high dismissal costs for permanent workers constitutes a particularly 'explosive' combination. In such an institutional context, the introduction of temporary contracts will intensify segmentation.

The Mechanisms of Type-of-Contract Segmentation

The previous discussion allows us to formulate the research question on the segmenting impact of deregulation in Spain as follows: *How does regulatory change* (at the macro-level) *affect the micro-level strategies of employers and employees over employment rents?* In order to answer this question, and drawing fundamentally on labour economics literature, a micro-model is now proposed. This model is based on two main mechanisms: (i) the 'incentive' effect and (ii) the 'buffer' effect. These mechanisms interact with each other providing the dynamics of the segmentation process. Let us now turn to explain this process in detail.

Deregulation through temporary employment allows employers to reduce temporary workers' employment-rents. In a context characterized by high dismissal costs for permanent employees and high unemployment, employers can use the possibility of conversion of temporary contracts into permanent ones as an efficient effort-eliciting tool—an alternative to efficiency wages in the classic model of Shapiro and Stiglitz (1984). Lacking the employment security levels that dismissal costs grant for permanent workers, temporary workers are forced to work harder in order to get their contracts renewed or converted into permanent ones, that is, in order to avoid unemployment. This is the incentive effect of temporary employment (Güell-Rotllan, 2000).

The incentive effect is, therefore, a simple carrot-and-stick mechanism: the possibility of conversion of a temporary contract into a permanent one acts as the 'carrot', whilst the threat of unemployment acts as the 'stick'. Of course, the higher the firm-specific investments in particular workers and the higher the

monitoring costs, the less efficient this mechanism will be relative to those provided by closed employment relationships. Hence, it follows that the rate of conversion into permanent employment will increase with task-specificity. Yet it must be noted that, even in those instances where task-specificity is high, employers might choose to resort to this sort of incentive mechanism rather than investing in long-term employment relationships and their usual incentive schemes as long as an appropriate rate of conversion into permanent employment succeeds in eliciting greater average output than the incentive costs the firm.

The buffer effect mechanism focuses on the effect of the introduction of temporary contracts on the rent-optimization capacity of workers on permanent contracts. As standard collective bargaining models explain, workers' bargaining power depends on their probability of survival in the firm (Layard *et al.*, 1991: ch. 2). The idea of the buffer effect is simple: in any given firm, temporary workers act as a shield that protects permanent workers from the risk of unemployment. Given the disparity in termination costs by type of contract, if things go wrong in the firm, temporary workers will be the first to be fired (or simply not-renewed). Temporary workers thus provide permanent workers with a buffer. This buffer gives permanent workers (insiders) a greater bargaining power (i.e. it augments their rent-optimization capacity). From this it follows that the larger the proportion of temporary workers employed in the firm, the greater the rents for insiders will be—particularly if temporary workers' interests are not properly represented in the collective bargaining process (Bentolila and Dolado, 1994). Non-inclusive bargaining and high dismissal costs for permanent workers are thus the institutional preconditions for the existence of intense buffer effects.

It must be noted that the buffer effect increases the efficiency of the incentive effect. The greater the rents for workers on permanent contracts, the more difficult it will be to dismiss them, which further lowers the survival probability of temporary workers in the firm (thus augmenting the risk of unemployment for temporary workers). Therefore, the greater the buffer effect, the greater will be the price of achieving a permanent contract for temporary workers (i.e. the bigger the buffer, the bigger the 'carrot'). This reinforcement effect will allow employers to extract the same output from temporary workers with a lower conversion rate. Therefore, buffer effects further increase employers' capacities to reduce temporary workers' rents.

Note, however, that this reinforcement effect must end at some point. There are two different reasons for this. On the one hand, the rate of conversion into permanent contracts must be high enough to be credible for temporary workers, otherwise the incentive effect disappears. There is, in other words, a minimum conversion rate below which there are no more incentives for temporary workers to work hard. On the other hand, the insiders' mark-up as a result of the buffer effect cannot increase in a linear fashion. At a certain threshold, a further increase in the proportion of workers on temporary contracts in a given firm might actually start debilitating rather than strengthening permanent workers' bargaining position. This is mainly due to the fact that insider bargaining will face problems of collective action if the number of temporary workers in the firm surpasses the optimum buffer-effect threshold. The buffer effect is thus expected to be non-monotonic.

Note that the lower the task-specificity, the higher the insiders' dismissal costs and the less inclusive the collective bargaining system, the stronger buffer and incentive mechanisms will be and thus the longer it will take until equilibrium is reached in the segmentation process. Reinforcing buffer and incentive mechanisms can, therefore, explain how the process of segmentation is triggered, what the logic of its own motion is and, crucially, how the process stabilizes (that is why the reinforcement effect ends). The employment-rent micro-model can, therefore, provide a dynamic explanation of the segmentation process (i.e. its 'cogs and wheels') that links macro changes to micro behaviour (see Figure 2) .

Testing the Model: Empirical Evidence from the Spanish Labour Market

The explanation provided by the employment-rent model is consistent with a rich range of original empirical evidence drawn from various statistical sources for the period 1987–1997, as well as with various findings reported by labour economists over the last decade.
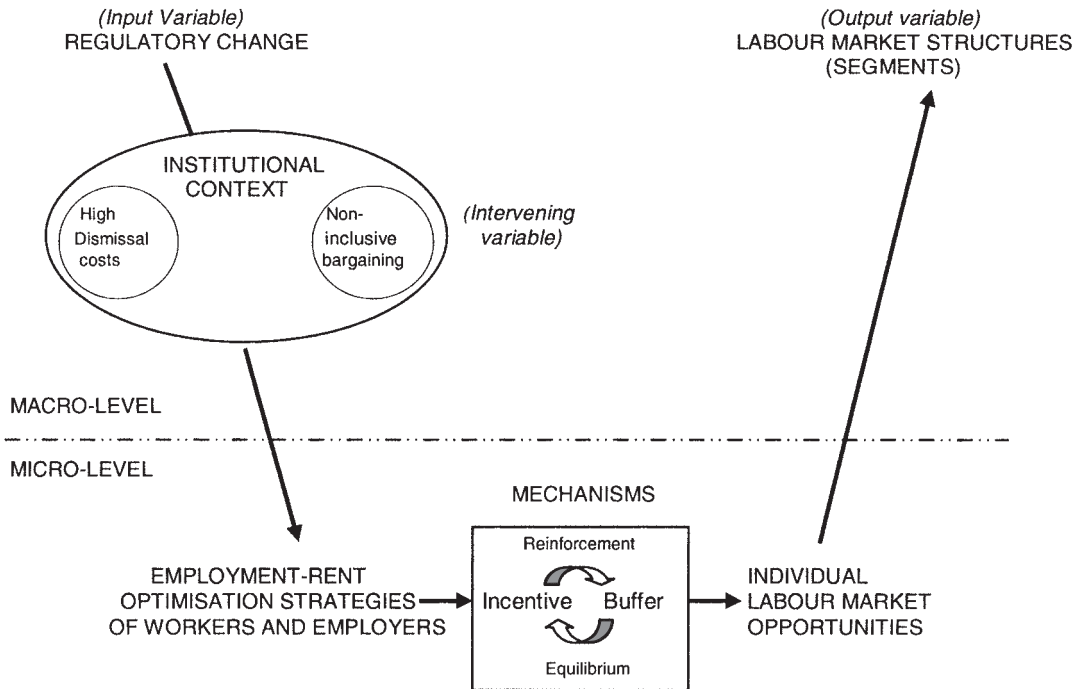
Figure 2. *The employment-rent model as a macro-micro-macro approach*

Effects on Employment

Using Spanish Labour Force Survey (LFS) data for the period 1987–1997, it is possible to analyse the impact of deregulation on the processes of employment-adjustment in the Spanish labour market.[5] This allows us to test the predictions of the employment-rent model with respect to the impact of deregulation on employment chances, the first dimension of the concept of LMOs.

Between 1984 and the early 1990s, the Spanish labour market saw the rapid expansion of a flexible segment of temporary contracts—an expansion greatly favoured by the economic boom experienced in that period. Soon after the 1984 reform, temporary contracts became both the principal means of entry into employment and the principal means of exit from employment into unemployment. The proportion of entries into temporary employment and exits from it into unemployment increased non-monotonically as the flexible segment expanded. By 1991, more than 80 per cent of all new entries into employment and of all new exits[6] into unemployment took place in the flexible segment of temporary work.[7] Between 1987 and 1991 the rate of temporary employment in Spain doubled from 15 to 32 per cent. In sum, what can be observed up until the early 1990s is the expansion of a fluid or flexible labour market segment in which most transitions into and out of employment take place. This expansion seems to have come to a halt in the early 1990s (see Figures 3 and 4).

Did the expansion of the flexible segment increase permanent workers' employment security relative to temporary workers as predicted by the employment-rent model? In order to answer this question, an indicator that accounts for the relative weights of permanent and temporary contracts among the employed population has been constructed. This indicator (represented by the symbol Ω_a) is a measure of permanent workers' job security *vis-à-vis* temporary ones. It is obtained by applying the following formula:

$$\Omega_a = 1 - [PNU^{PCt}/PPC_{t-1}] \times 100$$

where PNU^{PCt} is the proportion of newly unemployed workers observed in year t that come from permanent employment and PPC_{t-1} is the proportion of
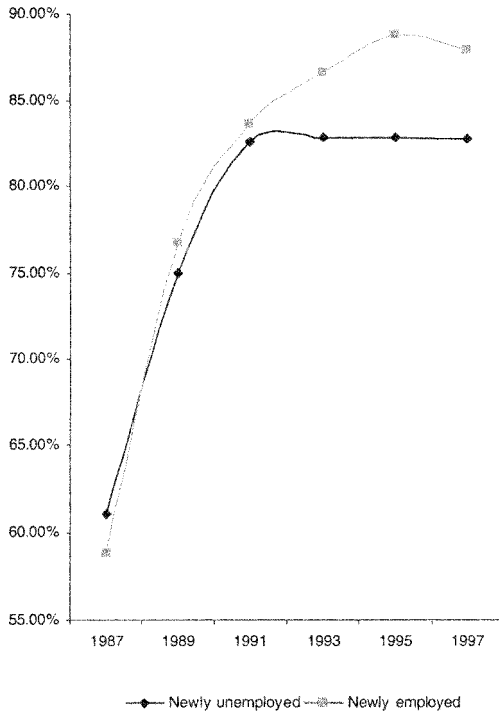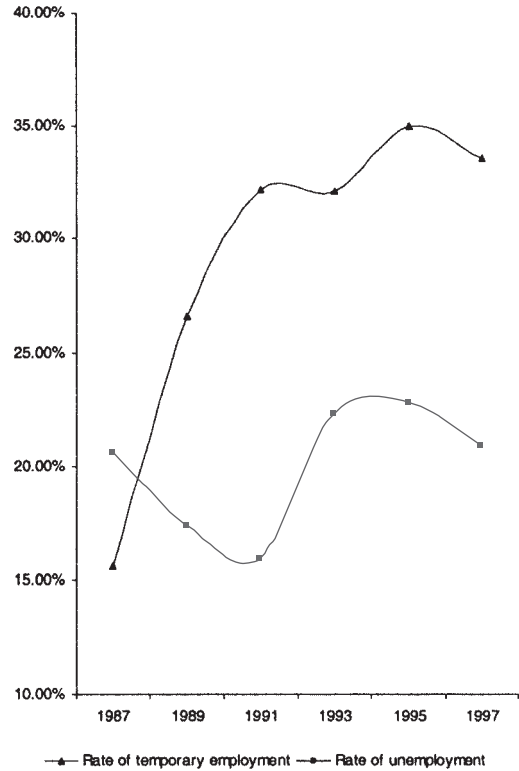
Figure 3. *Percentage of temporary contracts among the newly employed and the newly unemployed (LFS)*

Figure 4. *Rates of temporary employment and unemployment by year (LFS)*

employed workers on permanent contracts in the previous year.[8] Since only wage earners are considered, there are only two types of contracts, permanent (*PC*) and temporary (*TC*). Therefore, $PNU^{PCt} = 1 - PNU^{TCt}$ and $PPC_{t-1} = 1 - PTC_{t-1}$. Hence Ω_a can be taken as an indicator of the gap between the job security levels of workers on different contracts. Note that, in principle, Ω_a could range from 0 (which would imply no differences in unemployment risks by type of contract) to 100 per cent (which would imply maximum contractual differences, as all entries into unemployment would originate from temporary work).

Figure 5 shows the evolution of the Ω_a indicator over time. Note that permanent workers' employment security relative to temporary workers increases sharply until 1991 and then stabilizes, following roughly the same trend observed in the evolution of the overall rate of temporary employment. This suggests the existence of a buffer effect. It also suggests

that some sort of equilibrium in the segmentation process could have been reached around 1991–1993, a point after which no further enhancement of insiders' relative survival probability in employment is observed. The overall trend is, therefore, fully consistent with the predictions of the micro-model: an increasing buffer effect and then stabilization.

These predictions find further support in the evolution of the conversion rate of temporary contracts into permanent ones over time. According to the reinforcement effect hypothesis, an increasing buffer should improve the efficiency of the incentive mechanism and, therefore, allow employers to extract the same output from their temporary workers with a lower conversion rate (i.e. at a lower cost). All the existing evidence on the evolution of the transition rate into permanent employment have shown that this rate, which has always been very low in
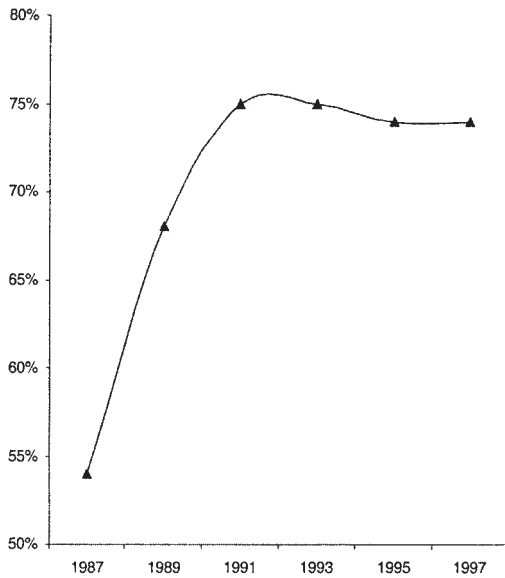
Source: LFS (second quarters), smoothed (calculated by the author)

Figure 5. *Permanent workers' survival probability relative to temporary workers (Ω_a) by year (LFS)*
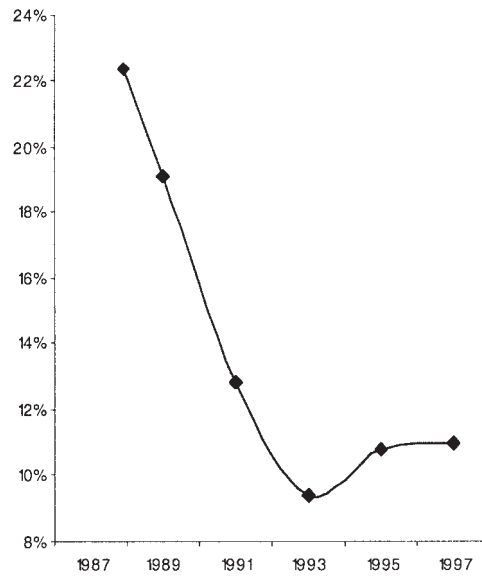
Source: LFS matched files (second quarters), smoothed (Toharia 1996 and 2002, personal communication)

Figure 6. *Percentage of temporary workers who hold a temporary contract 12 months later by year (LFS)*

Spain in comparative terms,[9] did in fact decrease sharply in the 1987–1993 period, and then flattened out to remain more or less constant (Toharia, 1996: 51; Alba, 1997: 13–9; Güell-Rotllan and Petrongolo, 1998: 13). According to these analyses, the transition rate between 1987 and 1988, the highest ever recorded in Spain, was around 20 per cent (i.e. 20 per cent of the temporary workers employed in 1987 had achieved a permanent contract in 1988). This rate declined rapidly thereafter so that between 1992 and 1993 it was only around 10 per cent. After 1992–1993 the decrease came to a halt as the conversion rate stabilized around the 10 per cent level for the rest of the analysed period. The data, therefore, suggest a non-monotonic decline in conversion rates. Figure 6 shows this evolution as calculated by Toharia (1996).[10]

Note that it is quite crucial for the testing of the model that the observed decline in the conversion rate took place in the face of very high levels of economic growth in the second half of the 1980s. It seems reasonable to expect that employers be more likely to invest in long-term employment relationship

the greater firms' profits are, and yet the evidence presented here suggests that precisely the opposite happened in Spain between 1987 and 1991. Why, if the economy was boosting, did Spanish employers became increasingly less willing to make their temporary workers permanent? The coincidence of a falling conversion rate and rapid economic growth does not seem to be explicable by standard theories of contracting, yet it is perfectly consistent with the employment-rent model: a greater buffer could have improved the efficiency of the incentive effect of temporary contracts thus allowing for an incentive-compatible reduction in the conversion rate.

Taking Figures 5 and 6 together, it can be noted that, as workers on permanent contracts increased their employment security over temporary workers, the proportion of the latter becoming permanent each year decreased. Greater job security in the core of permanent employment seems, therefore, related to greater job insecurity in the periphery of temporary employment. The employment-rent model provides a causal link between both phenomena.

Parametric analysis suggests that the segmentation process described so far for the whole of the Spanish

workforce cannot be interpreted as an artefact of compositional effects unaccounted for by bivariate analysis. For instance, Güell-Rotllan and Petrongolo (1998) have shown that the observed decline in the conversion rates of temporary contracts into permanent ones cannot be attributed to personal characteristics, household characteristics or firm characteristics (nor to changes in the business-cycle) since the non-monotonic downward trend is confirmed after controlling for all these factors. Original multivariate analysis of the yearly inflows into permanent employment shows similar findings.

Using data obtained by pooling together the second-quarter Spanish labour force surveys for every other year between 1987 and 1997, two logit models on the probability that new entrants into employment have a permanent contract (rather than a temporary one) have been fitted. The response variable in these models measures, therefore, the type of contract of all inflows into employment recorded each year. Entries into permanent employment include both transitions from temporary employment and transitions from any other labour market situation.

The first logit model fitted to the data assumes no interactions between the independent variables. According to this model, the chances of entering into permanent employment depend on sex, (non-monotonically on) age, class, respondents' education, firms' ownership, industry, province of residence and, crucially, on time. Time is coded as an interval variable that ranges from value 1 for the first year of the pool (i.e. 1987) to value 6 for the last (i.e. 1997). Non-linearity in the time-effect is tested by introducing a quadratic term (time^2). The main-effect model shows that the effect of time on the individual chances of entering into permanent employment is, as expected, negative and non-monotonic (i.e. entering into the core of permanent employment became increasingly difficult between 1987 and 1993, a point after which stabilization is observed).

The second logit model tested on the pooled LFS data accounts for an interaction between the non-monotonic effect of time and class on the chances of entering into permanent employment. This interaction should be expected if one assumes different intensities in the segmentation process by task-specificity—an assumption that is derived from the employment-rent model. The interaction model seems to provide a significantly better fit to the data than the previous main-effect model as revealed by the results of a likelihood-ratio test carried out between the two. Yet the predictions in terms of probabilities of entering into permanent employment for different classes and different years obtained using the interaction model are only marginally dissimilar to those obtained using the main-effect model. Figure 7 shows graphically the change in the average predicted probabilities of entering into permanent employment (rather than into temporary employment) by class and year as calculated by the main-effect model for 30–34-year-old males employed in the private sector.[11] Figure 8 shows the same average predictions as calculated by the interaction model.[12]

It must be noted that the proportion of variance explained by the models presented graphically in Figures 7 and 8 is very modest. In fact, the models perform rather poorly when it comes to predicting positive outcomes. This suggests either that there are important structured properties in the yearly inflows into permanent employment which are not properly captured by the parameters of the models or, alternatively, that there is a great deal of intrinsic random variance in these inflows. Note, however, that if individual employers are using permanent contracts as an effort-eliciting device at the firm level, attempting to explain the structure of the yearly inflows into permanent employment by reference to workers' individual characteristics can only yield modest results.

The logit models presented in Figures 7 and 8 show that the downward non-monotonic trend observed over time in the yearly inflows into permanent employment for the whole of the Spanish workforce persists even after controlling for age, sex, class, education, firms' ownership, industry, and province of residence.

In sum, all the data presented in this section show how, as the flexible segment of temporary work increased in size, it also increased in internal instability, while the opposite phenomenon is true for the core of permanent employment, which became smaller, more secure and more impenetrable. This process seems to have reached an equilibrium state in the early 1990s. All this evidence is, therefore, fully consistent with the idea that the buffer effect increases the efficiency of the incentive effect, hence allowing employers to extract the
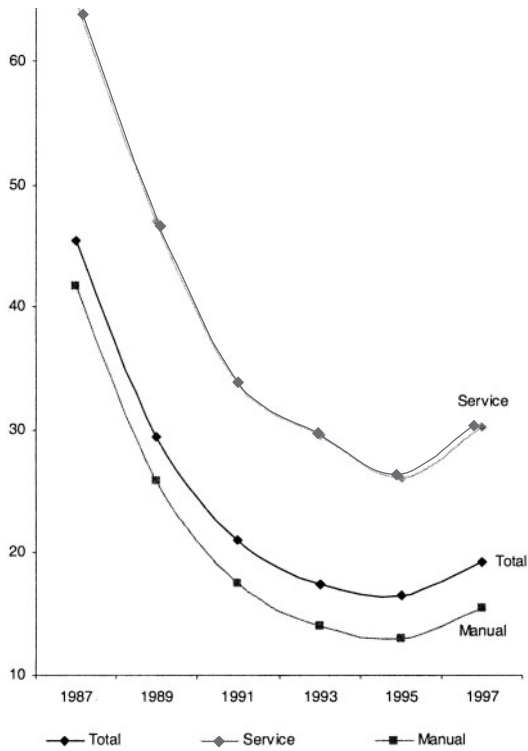
MAIN-EFFECT MODEL: Log $(P_{PC}/1\sim P_{PC})$=female(sig.) + age(
+ age^2(sig.) + class(sig.) + education(sig.) + firms' ownership(sig
industry(sig.) + province of residence(sig.) + time(sig.) + $time^2$(s

N=8,214
LR $chi^2(77)$= 1064.55
Prob. >chi^2=0.0000
Pseudo R^2=0.1169

Figure 7. *Average predicted probabilities of having a permanent contract for new entrants into employment for different years according to a main-effect model (predicted values for 30–34-year-old males employed in the private sector). Likelihood ratio test: interaction model against main-effects model: $chi^2(10)=20.46$; $p > chi^2 =0.0252$. Source: random sub-sample of pooled sample of LFSs, second quarters (1987, 1989, 1991, 1993, 1995, 1997) (calculated by the author)*
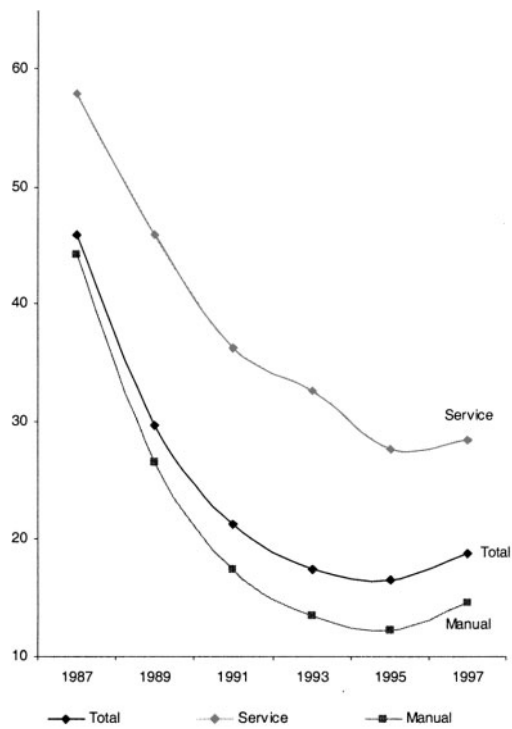
INTERACTION MODEL: Log $(P_{PC}/1 - P_{PC})$= female(sig.) + age(sig.)
+ age^2(sig.) + class(sig.) + education(sig.) + firms' ownership(sig.) +
industry(sig.) + province of residence(sig.) + time(sig.) + $time^2$(sig.) +
class*time(sig.) + class*$time^2$(sig.)

N = 8,214
LR $chi^2(87)$ = 1082.26
Prob. > chi^2 = 0.0000
Pseudo R^2 = 0.1188

Figure 8. *Average predicted probabilities of having a permanent contract for new entrants into employment for different years according to an interaction model (predicted values for 30–34-year-old males employed in the private sector). . Likelihood ratio test: interaction model against main-effects model: $chi^2(10)=20.46$; $p > chi^2 =0.0252$. Source: random sub-sample of pooled sample of LFSs, second quarters (1987, 1989, 1991, 1993, 1995, 1997) (calculated by the author)*

same output with a lower conversion rate, until equilibrium is reached.

As a result of the segmentation process, by 1997 the Spanish labour market showed a very intense differentiation of opportunities for stable employment by type of contract. That year, 34 per cent of the employed wage-earners in Spain had a temporary contract, whilst the unemployment rate was 21 per

cent, exactly the same figure that 13 years earlier had led the Socialist government to implement two-tier deregulation. Approximately 85 per cent of all entries into employment, as well as of all exits from employment into unemployment, that took place in 1997 occurred in the flexible segment of temporary contracts. The average tenure of temporary workers was only 12 months, a figure that stood in sharp contrast to the average tenure in employment for permanent

workers, which was 12 years. The segment-specific unemployment rate in 1997 was 34 per cent for temporary workers, yet only 5 per cent among permanent ones. The two segments had little permeability as shown by an annual transition rate between temporary and permanent employment of only around 11 per cent. As these data for 1997 show, the employment consequences of two-tier deregulation have been severe in Spain. What about its effects on wages?

The Effects of Two-Tier Deregulation on Wages

According to the incentive mechanism, temporary workers' insecurity in employment can be used by employers as a means to reduce temporary workers' rents. Using the possibility of conversion into permanent employment as an effort-eliciting alternative to efficiency wages, employers will be able to extract the same amount of output from temporary workers at a lower cost for the firm. It thus follows that employers will pay less to temporary workers than to permanent employees with similar characteristics. Wage discrimination is, therefore, the first expected wage effect of two-tier reform as predicted by the incentive mechanism.

There is evidence confirming the existence of wage discrimination against temporary workers in the Spanish labour market. Regressing (the log of) wages per hour on a plethora of individual, job and firm's characteristics Jimeno and Toharia (1992), Alba (1994, 1996) and Polavieja (2001) have isolated and quantified the wage effect of holding a temporary contract in Spain. According to their parametric analyses, Spanish temporary workers earn around 12 per cent less per hour worked than permanent workers of the same characteristics. It seems, therefore, that Spanish employers have found a way to bypass the law—which explicitly establishes the principle of equal work for equal pay—and discriminate against temporary workers in the wage setting process (Jimeno and Toharia, 1992: 21).

The second expected effect of two-tier deregulation on wages that follows from the employment rent model is, of course, a buffer effect. According to the buffer effect hypothesis, when the proportion of temporary employment to total employment rises, the survival probability of insiders rises accordingly, and unions, as insiders' representatives, demand

higher wages (Bentolila and Dolado, 1994: 72–75). Applying panel data techniques for dynamic models to data on firms' collective agreements, labour economists have shown that, *ceteris paribus*, an increase over time in the proportion of temporary workers employed in Spanish firms is indeed linked to a significant increase in insiders' bargained wages (Bentolila and Dolado, 1994; Rodríguez Gutiérrez, 1996). There is, therefore, firm-level evidence of a full buffer effect in the Spanish wage-setting process. To date, however, no evidence has been provided using individual-level data.

The Survey on Class Structure Class Consciousness and Class Biography (CSCCCB), carried out in 1991, allows us to carry out an individual-level test for the existence of a buffer effect in the Spanish wage bargaining process. The CSCCCB sample ($n = 6600$) includes 2933 employed wage-earners, 2158 of whom are workers on permanent contracts. The analysis is based on the premise that, if the buffer effect exists, permanent workers employed in firms with a higher proportion of temporary employees should, *ceteris paribus*, earn higher wages than permanent workers who do not benefit from this buffer. Hence, individual-level modelling substitutes the expectation that, with the increase in the buffer effect, individual insiders might obtain a mark-up over time, with the expectation that identical insiders employed in similar firms with different proportions of temporary workers (i.e. different buffer) should differ in their earnings.

In order to test for the existence of a non-monotonic buffer effect in the Spanish wage setting process, a polynomial model has been fitted to the (log) net wages per hour usually worked of workers on permanent contracts using the CSCCCB (1991). According to this model, wage differentials amongst permanent workers depend on sex, (non-monotonically) on age, class, tenure, education, firms' ownership, firms' size, firms' industry, region of residence and, crucially, on the proportion of temporary workers employed in the respondent's firm (denoted by ϕ). The model also introduces a quadratic term (ϕ^2) to test the hypothesis that the buffer effect has a ceiling beyond which a further increase in the proportion of outsiders debilitates rather than strengthens insiders' bargaining position. The sign and levels of statistical significance of the parameters obtained for both ϕ and ϕ^2 are fully consistent with the existence of a non-monotonic buffer effect. The wage equation
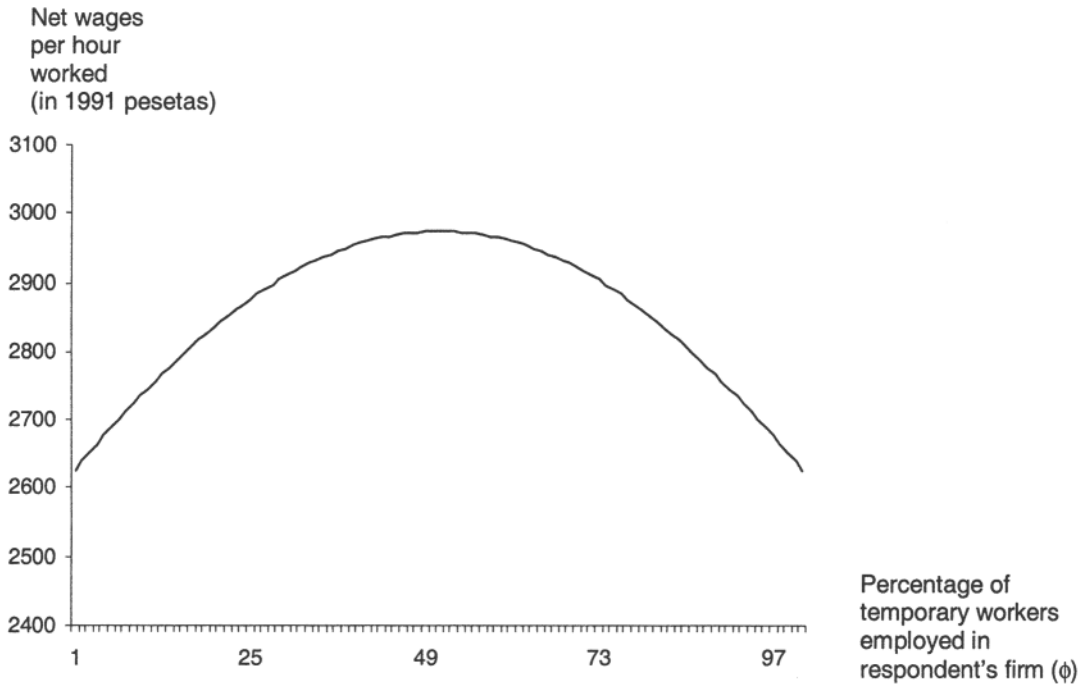
WAGE EQUATION: $\text{Log(permanent workers' net wages per hour worked)} = 5.6 + .04(\text{age})^{****} - .0004(\text{age}^2)^{****} - .05(\text{female})^{****} - .28(\text{white collars})^{****} - .24(\text{supervisors \& lower technicians})^{****} - .40(\text{blue collars})^{****} - .29(\text{unskilled service workers})^{****} - .47(\text{agricultural labourers})^{**} + .0005(\text{months of tenure})^{***} + .20(\text{general elementary})^{n.s.} + .33(\text{basic vocational})^{*} + .31(\text{intermediate vocational})^{*} + .16(\text{intermediate general})^{n.s.} + .44(\text{lower tertiary})^{**} + .66(\text{higher tertiary})^{****} + .13(\text{public firm})^{**} + .10(\text{size of firm} > 50 \text{ workers})^{****} - .35(\text{farming \& fishing})^{****} - .06(\text{extractive})^{n.s.} - .13(\text{light industry})^{***} - .04(\text{construction})^{n.s.} - .20(\text{hotels \& commerce})^{**} - .01(\text{transports \& communication})^{n.s} - .13(\text{services})^{***} + .005(\phi)^{***} - .00005(\phi^2)^{**}$

$N = 997$	$F(39,957) = 24.03$	*** significance ≤ 0.001	*** significance ≤ 0.01
$R^2 = .476$	Root MSE $= .39235$	** significance ≤ 0.05	* significance ≤ 0.10

NOTES: Predicted wages for professionals with tertiary education, 10 years of tenure, resident in Andalusia, employed in manufacturing small firms in the private sector. The model's parameters are robust to heteroscedasticity.

Figure 9. *The buffer effect on wages. Average net hourly wages (in pesetas) for a 40-year-old male professional employed on a permanent contract by percentage of temporary workers employed in his firm as predicted by a polynomial model fitted to the CSCCB (1991)*

estimates the ceiling level of the buffer effect to be around the 50 per cent threshold. This seems a reasonable figure although the very high levels of non-responses regarding ϕ mean that it should be taken with caution. Results are presented in Figure 9.

It must be noted that unobserved differences in what are considered to be 'identical' insiders could make the reported parameters biased,[13] which is another reason for advising caution in the interpretation of the findings. Yet it is quite noticeable that

these findings are highly consistent with the predictions of the employment-rent micro-model as well as with the firm-level evidence reported by labour economists. Taken together, firm-level and individual-level findings strongly suggest, not only that temporary workers are discriminated against in the Spanish wage-setting process, but also that permanent workers might have benefited economically from the buffer effect provided by outsiders. This interpretation fits nicely with the evidence on the employment

effects of two-tier deregulation presented above. It seems, therefore, that the buffer effect has indeed enhanced insiders' bargaining position *vis-à-vis* the employer, as a result of which they have been able to obtain wage gains (i.e. rents) which do not correspond to the employment situation in the Spanish labour market.

Conclusions

Segmentation triggered by the introduction of temporary contracts in Spain is a dynamic process that can be divided into two phases. In the first phase, which lasts until the early 1990s, there seems to be a mutually reinforcing inverse causal relationship between the employment-rent optimization capacity of workers on temporary contracts and that of permanent workers: as the former decreases, the latter increases (and *vice versa*). This interpretation linking temporary workers' disadvantages in the labour market to permanent workers' advantages is consistent with the existing evidence, summarized in this article, which shows how the flexible segment of temporary employment became increasingly precarious as it grew in size, whilst the permanent core became increasingly secure and impenetrable as it shrank. This mutually reinforcing process seems to have come to a halt around 1991–1993, a point at which, it has been argued, an equilibrium state was reached.[14] This was high-segmentation equilibrium, with more than one-third of the employed population on temporary contracts and still a very high unemployment rate.

The model proposed here offers a macro-to-micro-to-macro explanation of social change of the kind advocated by Coleman (1986). This type of explanation shows how changes at the macro-level influence the behaviour of individual actors at the micro-level, and how these actions in turn generate new macro states at a later time. In more concrete terms, the employment-rent model shows how institutional change at the macro-level (i.e. two-tier deregulation) altered the structure of opportunities within which individual actors carried out their rational optimization strategies (i.e. strategies over the generation/reduction of employment rents) and how, as a result of this alteration, new labour market inequalities were generated at the macro-level

(i.e. labour market segments). These inequalities have been defined as structured patterns in the distribution of individual labour market opportunities among workers of equivalent productivity.

Explaining the generation of labour market structures of inequality with reference to individual optimization strategies is fully in line with the plea for a mechanism-based sociological theory made by various sociologists for more than a decade,[15] as well as with the (related) view of causation as a generative process defended by John Goldthorpe (2000: ch. 7). The analytical perspective adopted in this article is also in line with various arguments in favour of a more interdisciplinary approach in the social sciences combining economic and sociological theories (e.g. see Swedberg, 1990). Yet the greatest advantage of the approach defended here is that it provides a detailed causal narrative that pays in terms of explaining the phenomenon under investigation.

Notes

1. More accurately, the 1984 reform removed all the hitherto existing barriers for the use of temporary contracts, which prior to the reform only existed for very limited activities of a seasonal nature.
2. The introduction of temporary contracts facilitated access into employment, reducing both the rate of long-term unemployment and the unemployment rate for those under 30. For a more positive evaluation of the flexibilization 'experiment' see Toharia and Malo (2000). A general overview can also be found in Dolado *et al.* (2001).
3. Although temporary contracts were introduced in 1984, it was not until 1987 that the LFS included information regarding the type of contract of respondents. 1987 is, therefore, the first year of the analysed series. In 1997 the recently elected conservative government implemented a new labour market reform, which introduced a new type of permanent contract with significantly lower termination costs. Given the very distinctive nature of the 1997 reform, the analysis of the segmenting impact of two-tier deregulation must end at this year. This defines a 10-year period, long enough to test the predictions of the employment-rent model.
4. Rents generated by asset specificity are called 'composite rents' by Sorensen (2000).
5. The LFS is carried out every quarter by the Spanish National Institute of Statistics (INE) among a sample

of approximately 60,000 households representative of the working-age Spanish population.

6. New entries into employment in the LFS are given by the number of employed respondents who claim that they were not employed the previous year, whilst new exits from employment into unemployment are given by the number of unemployed respondents who claim that they were employed.

7. Despite the massive destruction of employment that took place during the economic crisis of 1992 and 1994, in which more than 1 million jobs were lost, only 17 per cent of those who became unemployed in 1993 came from permanent employment.

8. To some extent, using the proportion of permanent workers the previous year is arbitrary since many of the job losses among the newly unemployed could actually have occurred within the year the survey was carried out. Results are, however, consistent either way.

9. Notice that the transition rate from temporary employment into permanent employment for the British case is approximately 45 per cent (Gallie, 2000: 301), while for the USA it is more than 50 per cent (Amuedo-Dorantes, 2000: 315).

10. The proportion of workers on temporary contracts in the second quarter of 1996 that held a permanent contract in the second quarter of 1997 was not reported in Toharia (1996). This datum has been kindly shared by L. Toharia (2002, personal communication), for which the author is most grateful.

11. Logit equations have been used to calculate the predicted values for each of the 30–34-year-old male respondents employed in the private sector. The probabilities plotted in Figures 7 and 8 are the average of the predicted values of all the observations in each class.

12. The logit models on entries into employment have been fitted to a randomly selected sub-sample ($n = 8214$) drawn from the total pooled sample, whereas the average predicted probabilities plotted in Figures 7 and 8 have been calculated using the whole pool ($n = 91,556$). Using a randomly selected sub-sample reduces the problem of having excessive levels of statistical significance caused by very large sample sizes. Using the whole pool for calculating the average predicted probabilities increases the precision of the predicted values. Results are, in any event, very similar regardless of the chosen approach.

13. The rate of non-response to the survey question on the exact number of temporary workers employed in respondent's firm is very high in the CSCCCB, rising to 56 per cent among wage earners. In order to maximize the number of observations, an average presence of temporary workers in non-respondents' firms has been assumed, as given by the overall rate of temporary work. The wage equation has also been fitted without inputting responses to the missing values. This latter approach yields results which are consistent with those presented here.

14. An alternative interpretation of the equilibrium state observed in the early 1990s is that such equilibrium was not produced endogenously as a result of the interaction of buffer and incentive effects, but was rather the product of the economic recession that hit the Spanish economy by 1992. Exogenous economic shock could have put an end to the increasing reinforcement of buffer and incentive mechanisms by making many insiders redundant. Note that, if correct, the economic-shock argument would imply that, in the absence of the economic downturn, the endogenously-induced equilibrium state could have led to an even higher aggregate rate of temporary employment than the one actually observed.

15. For example, see Boudon (1987), Coleman (1986), Edling (1998), Elster (1989), Gambetta (1987), and the various contributions in Hedström and Swedberg (1998).

Acknowledgements

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