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Retirement incentives, individual heterogeneity and labor transitions of employed and unemployed workers ☆

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ABSTRACT

In this paper, we analyze the sensitivity of the labor market decisions of workers close to retirement with respect to the incentives created by public regulations. We improve upon the extensive prior literature on the effect of *pension incentives* on retirement by jointly modeling the transitions between employment, unemployment and retirement, paying special attention to the transition from unemployment to retirement (which is particularly important in Spain and other European countries, and whose relevance is increasing as a result of the recent economic crisis).

Using administrative data, we find that, when properly defined, economic *incentives* have a strong impact on labor market decisions. Unemployment regulations are shown to be particularly influential for retirement behavior, along with the more traditional determinants linked to the pension system. Pension variables also have a major bearing on workers' reemployment decisions. The quantitative impact of the *incentives*, however, is greatly affected by the existence of unobserved heterogeneity among workers. Its omission leads to sizeable biases in the assessment of the sensitivity to economic *incentives*. We confirm the importance of this potential problem in the case of the change in early retirement provisions legislated in Spain in 2002 (which we analyze with a *difference-in-difference* approach).

1. Introduction

All around the world, demographic aging is expected to produce significant changes in the size and composition of the labor force. For example, the old-age dependency ratio in the European Union is projected to more than double (from 25.4% to 53.5%), and the potential labor force is expected to decrease by as much as 13.6% over the 2008/2060 period.[1] This type of severe predicted labor shortage is in no way solely applicable to European countries. According to the 2008 UN population projections, old-age dependency ratios will increase in 2000/2050 by almost 50 percentage points (pp) in Japan, 30 pp in China, and around 15 pp in the United States. Seen in this perspective, the labor imbalances created by the latest cyclical downturn in 2007/2009 (most visibly in countries like the USA, Ireland or Spain, where the unemployment rate doubled over this period) look like a transitory phenomenon. In our view, the real challenge for future governments will most probably lie in attracting older individuals back to the labor force rather than the opposite. Indeed, most of the policy reforms recently implemented clearly point in this direction.[2] Succeeding in this endeavor requires a better understanding of labor supply than that achieved so far, particularly in regard to the ability of policy makers to influence individual behavior via *incentives* (i.e., by changing the institutional environment without imposing specific choices on individuals).

In this paper, we contribute to this inquiry in three ways. First, by exploring the labor supply of both employed and unemployed older workers. In our view, the latter group has been somewhat overlooked in previous research, despite being large enough to make a significant contribution to labor supply in OECD countries.[3] Secondly, we carefully model the variables that capture the complex incentives provided by

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[1] Economic Policy Committee and European Commission (2009) page 24. The old-age dependency ratio is the ratio of people aged 65 or above relative to the working-age population aged 15–64.

[2] The delay in normal retirement ages in OECD countries is a good example (Whiteford and Whitehouse, 2006).

[3] For example, according to the OECD, the 2010 unemployment rate among 55–64 year-old males is 8.1% in Germany, 7.9% in the US, 6.3% in the UK, 6.8% in France and 14.3% in Spain.

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public institutions. For example, access to high quality administrative data allows us to ensure that public benefits are applied only to eligible individuals. Finally, we contribute by explicitly considering multi-spell data and including unobserved heterogeneity in our analysis.

The natural reference for this work is the empirical literature using reduced-form models in the study of the retirement behavior of employed workers.[4] Loosely speaking, the methodology employed in this literature involves two steps: the measurement of the key incentive variables and, in a second step, the quantification of their influence on retirement decisions via reduced-form econometric analysis (see, for example, Gruber and Wise (1999) or Casey et al. (2003)). The formal estimation of econometric models including incentive variables as key regressors is well illustrated in Samwick (1998), Borsch-Supan (2000) or Belloni and Alessie (2009). The Spanish case has also received a great deal of attention, as exemplified by Boldrin et al. (2004), Jiménez-Martín and Sánchez-Martín (2004) or Cairó-Blanco (2010). These previous analyses have produced mixed results. They typically find a significant (although somewhat weaker than expected) influence of financial incentives on retirement from employment. It is not uncommon, however, to find papers reporting non-significant results or even estimates with the "wrong" sign (see, for example, Rust and Phelan (1997) or Gruber and Wise (2004)). Our work expands this literature in several dimensions. Finally, calibrated general equilibrium models have shown the effectiveness of financial incentives on retirement decisions (see Hairault et al., 2008), but also that there is a political majority supporting such measures (Galasso, 2008).

First, we add to recent empirical literature that incorporates into the analysis the labor supply patterns of unemployed workers. This is the case of Coile and Levine (2007), who explore the influence of changes in labor market conditions and unemployment benefits on retirement decisions in the US economy. In a more recent paper, Coile and Levine (2009) evaluate the relative impact of changes in labor market conditions vs. changes in the value of wealth. Benitez-Silva and Ni (2010) focus on the determinants of the job search of individuals approaching or having reached retirement. In Europe, where the incidence of unemployment is typically higher, the topic has also been the focus of recent academic attention. Using French data, Hairault et al. (2010) find that the distance to the statutory retirement age is a key predictor of the employment rate of older workers. We continue this line of research here by studying the impact of financial incentives in Spain with a sample of administrative records from the Spanish Social Security. We analyze the retirement and reentry decisions of both employed and unemployed workers, taking great care in the construction of the incentive variables used as explanatory variables. We also explore the transition into unemployment, bearing in mind the possible strategic use of unemployment insurance as an early retirement device.

Spain is an interesting case because of the strong incentives embedded in its pension and unemployment insurance programs.[5] Early retirement penalties provide a clear illustration of the type of problems involved. Under the standard program, early claiming of pension benefits is possible only over the age of 60, and subject to rather severe penalties (7.5% for each year the individual claims before the Normal Retirement Age (NRA) of 65). This is a clear deterrent for employees, but has unintended consequences for the unemployed. In Spain, the unemployment insurance authority provides a cash benefit of 60–70% of the previous wage (for up to 2 years) and pays welfare contributions to the Social Security. It is also remarkably tolerant regarding the search effort demanded from its registered unemployed. This is, therefore, a textbook example of moral hazard: for a large number of unemployed, the optimal response is to stay unemployed without searching while accumulating pension rights (i.e., being effectively out of the labor force but still being paid as if they were looking for jobs).[6] These inefficiencies are common across OECD countries. Germany and France, for instance, combine a generous unemployment benefit with an exemption from job seeking before the age of 60, the Early Retirement Age (ERA). Unsurprisingly, the early retirement route via unemployment is very popular in both countries (see chapters 3 and 4 in Gruber and Wise (1999) or Hairault et al. (2010)). In this paper, we quantify the behavioral consequences of this and other regulations and their contribution to the generation of an alternative exit route out of the labor force.

A second contribution of our work is more methodological: the explicit inclusion of unobserved heterogeneity in a multi-spell multi-state competing risk model. This is especially important when using administrative data, which may fail to provide certain individual or family variables. More generally, the omission of unobservable differences in preferences and individual-specific labor market characteristics can easily bias the estimated results on the effect of financial incentives over individual behavior. For example, minimum pensions usually take the blame for the peak in retirement hazard observed in Spain at the ERA. However, it may be the case that these peaks are due to composition effects. They may reflect the existence of some people whose unobservable characteristics (preferences, wealth, etc.) lead them to claim benefits, typically under the effect of credit constraints, at the first age available (60).[7] These alternative explanations are most probably intertwined. If a high propensity to leave the workforce early is partly the product of individual preferences, it will probably result in low life-cycle contributions and, consequently, low (most likely minimum) pension benefits. With our estimation process, we allow the two mechanisms to reveal themselves.

Our empirical strategy is based on the joint estimation of two discrete-time duration models, one for the exit from employment and another one for the exit from unemployment. We adopt a multiple risk approach with three destination states (employment, unemployment and retirement), incorporating unobserved heterogeneity in a flexible way without imposing any proportionality assumption in the hazard rates. The transition rates are allowed to depend on both observed and unobserved characteristics, as well as on the time spent in the respective state. Consequently, we derive the *joint* likelihood of all the observed transitions each individual in the sample may go through, taking into account the effects of unobserved factors in those transitions. The joint consideration of both the employment and unemployment spells of the same worker is important in order to properly identify the effect of economic incentives on their individual decisions.

Our findings can be categorized into three groups. A first set of results provides a robust confirmation of the importance of economic incentives. While the previous literature has struggled to confirm the size (and in some cases even the sign) of the incentive effects, our estimations are clearly consistent with the theoretically expected sign of these effects. We find that the amount of disposable income (in the current and alternative labor states), the amount of accrued pension rights and their change with current decisions are all strong predictors of individual behavior. The financial opportunities captured by our incentive

[4] There is a well developed, parallel literature based on the estimation of structural models. However, for the reasons discussed in Section 2, we find the reduced-form approach more appropriate to this paper's target.

[5] Note however, that similar institutions are found in a large number of European countries. In many cases, the disincentive to work stems from the combination of early retirement, generous unemployment protection and a permissive attitude towards the search effort of the unemployed approaching retirement.

[6] The unemployed aged 52 or older are entitled to a special unemployment program (UB52+) that provides assistance benefits, once contributory benefits are exhausted. The benefit can be enjoyed on a continuous basis until the individual receives retirement benefits. Note also that unemployed people cannot remain inactive according to Spanish legislation, but the authorities largely turn a blind eye to this common practice.

[7] Gustman and Steinmeier (2005) is a good example of this approach. The population is split into two groups according to the time-discount factor. As a result, early retirement is less dependent (although not completely independent) on the financial incentives provide by the Social Security system.