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A New Explanation for the Italian Case

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The three papers that are being edited in succession in this discussion paper series –respectively by Sulis, Patriarca and Naticchioni-Panigo- are the results of the development of one of the main topics investigated within the program of the research partnership DSE-ISFOL in the years 2003-2004, *i.e.* the interpretation and the quantitative analysis of labour mobility and earnings dynamics in Italy. Each paper is an autonomous development of the research interest of the authors, who remain responsible for results and comments. Nevertheless, these papers have found a common source of inspiration from interaction, seminar activity and discussion among the members of the research group.

I tre lavori che vengono pubblicati in successione in questa collana – rispettivamente di Sulis, Patriarca e Naticchioni-Panigo- sviluppano una delle tematiche centrali della convenzione di ricerca DSE-ISFOL per gli anni 2003-2004, *i.e.* modelli interpretativi e analisi quantitativa della mobilità occupazionale e salariale. Questi lavori rappresentano sviluppi autonomi degli interessi di ricerca dei singoli autori, che rimangono pertanto responsabili di risultati e commenti, pur traendo tuttavia inspirazione dall'attività seminariale, dall'interazione e dal confronto all'interno del gruppo di ricerca.

Employment Protection, Job-Tenure and Short Term Mobility Wage Gains: A New Explanation for the Italian Case

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Abstract

This paper investigates theoretical and empirical links between job-tenure and short-term mobility wage gains. Standard theoretical approaches examining this subject predict a negative correlation between these variables. Furthermore, this result has been confirmed in different applied researches for US. However, European labour market institutions appear to be quite different from US ones, especially for employment protection and turnover costs. Taking this feature into account we develop a theoretical model, evaluated through analytical and simulation procedures, where optimal switching conditions determine a positive correlation between job-tenure and short-term mobility wage gains. Our main proposition is confirmed for the Italian case using an administrative panel database (INPS) and different econometric specifications.

JEL codes: J31, J38, J63, J65 and C23
Keywords: Job-tenure, Employment Protection, Mobility Wage Gains, Risk Aversion, Panel Data Estimation.

1 Introduction

Job mobility effects on wage growth are analyzed through different approaches allowing for between and/or within-job wage dynamics.

In Search Theory models wage growth is entirely explained by discrete jumps (short-term mobility wage gains). On the other hand, job-matching and human capital approaches allow for different within-job wage dynamics while short-term mobility wage gains (MWG) will be rather negatives.

All these theories predict a negative correlation between short-term MWG and previous job-tenure, even if they are based on alternative analytical frameworks (see section 2). This theoretical relationship appears to be confirmed by recent empirical evidence.

However, both theoretical and applied research have been developed to explain the US labor market dynamics[1], where employment protection is the lowest among OECD countries[2]. Results cannot be generalized for European countries where employment protection legislation and labor market institutions play a more important role entailing a relevant trade-off between mobility wage gains and job-uncertainty. Indeed, these institutional differences, in particular the fact that firing costs are nearly proportional to job tenure, seem to be useful to explain differences between US and Italy concerning job-tenure effects on retention rates (a proxy for the probability to remain in the same job).

For this reason, we develop a complementary analytical framework allowing for a positive correlation between job-tenure and short-term MWG ("risk effect"). We will use a model where turnover costs are proportional to job tenure while job uncertainty decreases with these costs. A key feature of this model is the asymmetric uncertainty between job positions due to differences in job-tenure. Indeed, as turnover costs increase with job-tenure, current job uncertainty will be always lower than that of outside options (where job-tenure is zero when a job change takes place). When this difference increase short-term MWG must also increase to fulfil the optimal switching rule (while long-term MWG becomes progressively less important to switching decisions). We prove this proposition in two different ways, using both analytical and simulation approaches.

In order to test the accuracy of our theoretical proposition we use an administrative database of the Italian Social Security System (INPS). We will

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[1] Almost all studies analysing job-tenure effects on MWG have used US panel data. See Carroll and Powell (2002), Gottschalk (2001) or Buchinsky *et al.* (2002). See the following sections.

[2] See for instance the OECD (1999) ranking concerning Employment Protection Legislation.

carry out a panel estimation with more than 330.000 observations for 61,991 male workers from 1992 to 1998. Since we are interested in dealing with both individual effects and endogeneity bias (due to the potential feedback between individual effects and job-tenure) we have decided to carry out several different specifications for an extended log-wage equation (OLS, fixed effects, first differences, IV fixed effects, IV first differences and General 2SLS).

The structure of the paper is the following. In section 2 we summarize both standard economic approaches and empirical evidence concerning MWG. In section 3 we develop our theoretical model showing that under some specific assumptions it is possible to obtain a positive correlation between short-term MWG and previous job-tenure. In section 4 we present the empirical application to the Italian case while concluding remarks are reported in section 5.

2 Theoretical and empirical survey

Search Theory[3] central hypothesis assumes that wage gains, which are derived from job mobility, are the result of discrete jumps in the wage level when the worker moves between two different positions (assuming that after this jump the wage level is constant up to the next job-change).

These models assume that worker productivity is constant along his/her working experience. Nevertheless, his/her wage can vary among different firms. Each of them can get different productivity levels from the same worker. Using this framework, Burdett (1978) examines the dynamics of the voluntary job mobility. In his model, workers search 'on-the-job' considering a stable distribution of potential wages, with imperfect (and costly) information regarding higher wage offers.

Imperfect information and turnover costs determine a positive effect from voluntary mobility on wage growth. Furthermore, assuming the stability of the (between-jobs) wage distribution function it is possible to derive an additional corollary: MWG increase at a decreasing rate with job switching intensity. Indeed, when workers "move" voluntarily, they go up inside the wage distribution function $F(w)$. Therefore, if $F(w)$ is continuous and strictly increasing in w, the "marginal probability" of getting a better wage offer (as well as the size of expected MWG) decreases with the number of voluntary job changes.

Therefore, Search Theory predicts a concave positive relationship between wages and job mobility thoroughly explained by MWG. This result involves a negative correlation between previous job tenure and short term MWG.

Returns from voluntary job mobility are not always characterized by discrete changes in the wage distribution. They could also be determined by the expected wage evolution in the new job.

Jovanovic (1979) develops a job-matching model, which assumes as given the new job value while current job value evolves stochastically according to the

[3] Search Theory seminal paper is Phelps *et al.* (1973). For a recent survey see Mortensen and Pissarides (1999).

information concerning the actual worker productivity.

The starting wage depends on the expected worker productivity. In competitive markets, when new information is revealed the wage level evolves according to productivity dynamics. A job change takes place when the value of the outside option is higher than the current job expected value.

However, a general pattern for wage dynamics and its relationship with job mobility is not strictly described. In order to do so it is necessary to assume that worker productivity information is accumulated at decreasing rates and it is not transferable across firms (Mortensen, 1988). In this framework it is possible to claim that: a) job mobility can incorporate a short-term earnings drop if it is compensated by a higher wage growth in the new job; dynamic characteristics of information process entail a concave wage evolution (even without job mobility).

Human Capital approach represents an alternative theoretical framework to analyze MWG (Becker, 1962). More specifically, on-the-job training models[4] highlight the fact that the relative value of current employment (along with productivity and wages) increase with job tenure because of specific human capital (SHC) accumulation. However, SHC accumulation rate decreases with job-tenure (a standard hypothesis in Human Capital models *a la* Becker) and then wage growth will decline alongside the worker experience within a particular job.

If SHC is not transferable across firms, SHC accumulation (and wage growth) will accelerate after each job change, while short-term MWG are not unambiguously determined.

When between firms worker productivity is identical (for a given job-tenure) or differences are not significant, short-term MWG will be strongly negative (but afterward compensated by a higher wage growth) because of the loss of (non transferable) SHC. If the new job wage dynamics replicates that observed in the previous job, new initial wages must be forcefully higher than those observed in the previous work (but not necessarily greater than the last wage observed before the job-change). Nevertheless, short-term MWG can be positive if the SHC non-transferability hypothesis is removed. This is the case for a within-sector job change where the optimal switching rule could be satisfied by initial gains in the wage level.

Therefore, job-matching and human capital approaches allow for both short-term and long-term changes in wage dynamics. As a general result, wage growth will increases after every job change while short-term MWG will be rather negatives (except for cases implying between-firm transmissible information and general human capital accumulation).

To sum up, all standard theoretical approaches predict a negative relationship between previous job tenure and "short-term" MWG. In Search Theory models short tenures are correlated with high MWG at the beginning of labor market experience. On contrary, long tenures and weak MWG would be typical

[4] For detailed information about on-the-job training and job-mobility relationship see Mincer (1988) and Krueger and Rouse (1998).

for experienced workers (because of decreasing probability of getting a better wage offer)[5]. Moreover, on-the-job training models define a positive correlation between SHC and job-tenure, which entails a negative relationship between this variable and short-term MWG. Job-tenure increases the mobility wage loss because current SHC will not be appreciated in the new job. Finally, similar results apply for job-matching models.

As far as empirical evidence is concerned, it is worth noting that applied studies on MWG has widely increased since the seminal contribution of Bartel and Borjas (1978). As a general result we highlight that short term MWG are always around 10-20%, and they seems to be slightly correlated with individual and firm characteristics[6].

Unfortunately, most of these papers do not consider the relationship between previous job-tenure and short term MWG. However, there are three recent studies (for US panel data) where the composite wage effect of voluntary job-change and previous job-tenure is explicitly analyzed.

Covering the period going from 1979 to 1994, and using parametric and non-parametric estimations, Carroll and Powell (2002) find out that voluntary job-change entails a short-term MWG of 8,7% when previous job-tenure is lower than 2 years. After that, short-term MWG decrease systematically, becoming non-significant when previous job tenure is higher than 6 years. Moreover, OLS estimates indicate that short-term MWG decrease 1,5% for each additional year in previous job tenure.

Gottschalk (2001) uses the 1986-1993 panel of the Survey of Income and Program Participation (SIPP) to perform OLS estimates of between job wage growth equations. As in Carrol and Powell (2002), voluntary MWG are negatively correlated with previous job-tenure: each additional month in previous position involve a wage loss of 0,3% (e.g. 3,6% per year).

In another paper, Buchinsky *et al.* (2002) apply a Bayesian approach (and Markov Chain Monte Carlo methods) to estimate simultaneously a participation equation, a wage equation and an interfirm mobility equation using the US Panel Study of Income Dynamics (PSID, 1975-1992). Even if main coefficients appear to be slightly different across population sub-groups (classified by education level), there is a common feature related to the fact that short-term MWG is generally decreasing in previous job-tenure.

In all these papers US empirical evidence supports standard theoretical hypotheses showing a negative relationship between voluntary short term MWG and previous job tenure.

[5] Nevertheless, it is also possible to find a positive correlation between job tenure and short term MWG in Search Theory models. Conditional on wages, the longer the tenure, the higher the expected short term MWG (because job tenure is assumed to be positively correlated with on-the-job search activities). But this is true just for a given wage rate. When we allow wages to change, previous results (with a negative correlation between job-tenure and short-term MWG) still apply.

[6] See for instance Altonji and Shakokto (1987), Topel (1991), Topel and Ward (1992).