Does Employment Protection Affect Migration? Theory and Evidence for Italy

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Preliminary version. Please do not cite

September 2, 2016

Abstract

In this paper we study the determinants of migration using a novel search model where individuals with different skills are allowed to migrate across regions populated by heterogeneous firms and in presence of firing costs. We calibrate the theoretical model to Italian data and explore its quantitative implications, in particular with respect to the intensity of firing costs. We then test its predictions using census data of inter-regional mobility in Italy in the period 2000-2014. We conclude that the decrease in the firing costs over the period (i.e. higher flexibilization) led to an increase in the probability to migrate in Italy.

1 Introduction

The stock of international migrants currently amounts to 215 million, meaning that 3.1 percent of the world's population is living outside their country of birth (Martin, 2010). Some of the countries which were used to be source of immigrants switched in a short span of time to being a destination for immigrants (Borjas, 2014). Italy for instance is a country with a long history of emigration and a very short experience of immigration (Del Boca and Venturini, 2003). However, Italy is also a country with a long history of intense internal migration flows. During the 1950s and 1960s migration flows from southern to northern regions have been an important and significant phenomenon. Later, from the 1970s to the second half of the 1990s internal mobility consistently declined, and only after 1996 data show a considerable upturn (Etzo, 2011). In the literature, this fall in internal migration which lasted for over twenty years has been identified as an "empirical puzzle", with important labour market implications. Many papers have been trying to find plausible explanations for this trend, without reaching a convincing conclusion. The potential causes which have been discussed range from the convergence of regional wages, to the decline in the propensity to migrate, to the cost of housing transactions, to demographic factors. Finally, low internal mobility has also been attributed to the inefficiencies of the job matching process (Faini et al., 1997). The rationale lies in the fact that rigid labour markets such as the Italian one until the early 1990s are characterized by frictions and imperfections, which prevent labour demand and labour supply to meet efficiently. Gil and Jimeno (1993) for instance claim that if the probability to find a job in a given region is higher for someone who resides in that region and smaller for somebody who resides in another region, then migration is expected to precede employment. However, if mobility costs are sufficiently high, then the result could be an equilibrium with low migration. Some informal empirical evidence points at the fact that young workers who are disproportionately hired on short-term contracts have increased their share in total migration, hinting at a positive effect of short-term contracts on migration (Bentolila, 1997). Some studies on the other hand provide support for the hypothesis that the diffusion of short-term contracts is the cause for reduced migration (Antolin and Bover, 1993; Dolado et al., 2002), as a small number of unemployed would accept a temporary job implying a change of residence. In this paper, our aim is to further explore this issue, by investigating whether the increase in labour market flexibility registered since the mid 1990s had an impact on labour mobility, by affecting the decisions of workers to migrate from one region to the other.

To achieve this objective, we focus our study on the impact of a number of recent labour market reforms (1997, 2001) which have significantly lowered the employment protection legislation associated with temporary contracts (Figure 1). In particular, we develop a novel search and matching model where individuals with different skill levels are allowed to migrate across regions characterized by different economic conditions. We consider two regions (a more and a less productive) and we analyze the migration decision of workers (employed and unemployed)

who maximize the present discounted value of their utility net of the migration cost. Specifically, we study the effect of the employment protection legislation (EPL) on the individual probability of migrate and, therefore, on the distribution of productivity of the two regions. We first calibrate the model and then we test the predictions using census data of inter-regional mobility in Italy over the period 2000-2014. We find that that the flexibilization of the Italian labour market led to an increase of the probability of migrate from one region to another.

This article also complements the extensive literature that relates firing costs and labour market performance. Specifically, our work relates to the large empirical literature on the impact of firing costs using macrodata and microdata. Studies using aggregate data include Bertola (1990), Lazear (1990), and DiTella and MacCulloch (2005), among others. There are also a handful of studies examining the impact of firing costs using microdata, including Kugler (1999), Oyer and Schaefer (2000, 2002), Acemoglu and Angrist (2001), Kugler, Jimeno, and Hernanz (2003), and Kugler and Pica (2004). Overall, the empirical analysis using data for several OECD countries finds a quite clear relationship between measures of EPL and labour market flows.[1] Countries with more stringent regulations are found to have, everything else being equal, more employment stability. At the same time, in these countries, unemployment duration is also higher. However, the results are more mixed when analysing empirically the relationship between measures of firing costs and unemployment rates (Guell, 2010).

The literature on migration is vast and includes several different strands.[2] Our work fits in the literature which studies the determinants of the migration phenomenon. The gravity model is the most common theoretical framework used in empirical analysis to study the spatial determinants of migration. In this context, distance is used as a proxy for migration costs, both psychological and monetary (Greenwood, 1999; Greenwood and Hunt, 2003). However, often other potential determinants, such as the unemployment rate and per capita GDP are included. While the former is found to have a strong and robust effect on migration (Daveri and Faini, 1999; Greenwood, 1997), the latter has ambiguous effects (Daveri and Faini, 1999; Fachin, 2007; Pissarides and Wadsworth, 1989).

On a parallel line, the human capital theory of migration has emphasized the distinction between the determinants of migration and other features which select migrants, with an impact on the propensity to migrate and therefore on the stratification of people (Etzo, 2008). Demographic characteristics such as age and gender are found to have the biggest selective influence on migration propensity (Champion et al., 1998), followed by education (DaVanzo, 1983), marital status (Graves, 1980a) and employment status (DaVanzo, 1978). The reason why people decide to migrate from one region to the other may also be due to other factors affecting the quality of life. According to Graves (1980a,b), differences in wages are partially

[1] Although international comparisons may be difficult if data are not comparable. See Blanchard and Portugal (2001) and OECD (2004).

[2] The migration phenomenon can be classified in different categories: it can be international or internal; it can be studied from the point of view of the individual or of the country of origin or destination; it is studied for its determinants as well as for its consequences.

compensating for spatial variations in location-specific amenities such as climate and temperature. Glaeser and Saiz (2001) extends the set of environmental variables to social, cultural and skill-dependent amenities which are particularly relevant in a city context (Shapiro, 2006).

The strand of literature which is closer to this work is the one which examines inter-regional migration flows among regions in Italy (Attanasio and Padoa Schioppa, 1991; Basile and Causi, 2007; Cannari et al., 2000; Daveri and Faini, 1999; Etzo, 2008; Faini et al., 1997). This literature is not very large, and it focuses on explaining the empirical puzzle of the declining migration during the 70s and 80s. Most importantly, none of the studies addresses the effects of the increased labour market flexibility in Italy on the probability to migrate from one region to another.

This paper is organized as follows. Section 2 illustrates the institutional background related to the labour market and the major labour market reforms implemented in the last two decades. Section 3 reports a search model with firing costs and migration. In Section 4 we describe the data and we show our findings. Section 5 concludes the paper and describes our future research agenda.

2 Changes in Italian Labour Marker

Open ended contracts associated with quite rigid EPL and high firing costs have represented since 1942 in Italy the traditional legal instrument to hire workers. These contracts are also characterized by the highest wedge between gross salary and labor costs, due to high labour taxes and social security contributions. Since the early 60s, short-term contracts have been regulated. They share the same characteristics as the open-ended contracts, but for the limited duration established at stipulation (up to two years, with only one possibility of renewal). Due to strict rules for adoption, which limited significantly the scope for utilization, their percentage was small until the nineties. Two other types of quasi substitute fixed-term contracts were available since the 70s: apprenticeship and *Contratto di Formazione Lavoro* (vocational training contract). They were meant to train individuals to learn a profession,[3] and therefore, were specifically designed for young people below the age of 34.

On the wave of liberalization of the European labour markets, in the past two decades many reforms have been approved in Italy to relax the rules for the utilization of fixed-term contracts and several new types of employment contracts (with fixed duration) have been legislated.[4] The objectives of these interventions, in accordance with the European guidelines, were the reduction of unemployment, particularly among young people, the increase of labor force participation, and the boosting of employment. Indeed, employment, unemployment,

[3]Together they represented less than 10% of the total number of contracts. They differed in the length of the contract and in the training required. The apprenticeship contract was in general longer and demanded more training. Controls for training were much stricter for apprenticeship and were organized at both national and local levels.

[4]See Tealdi (2011) for an extensive description of these reforms.

and labor force participation in the nineties in Italy were significantly worse compared to other European countries. Young and long term unemployment rates were higher than the EU average (respectively 31% and 70% compared to 16% and 44%),[5] labor force participation and employment were among the lowest in Europe, particularly among women (44% and 36% compared to the average 54% and 49% among the EU countries).[6] In order to promote the utilization of these new forms of employment contracts, new government subsidies were provided to reduce the relative cost of fixed-term contracts (social security fees) compared to open-ended contracts. Moreover, the shorter and flexible length of fixed-term contracts and the possibility to dismiss the worker at expiration at no cost created additional incentives for their adoption by firms. The combination of more flexible and cheaper hiring/firing decisions, and the lower labor cost burden, was the recipe adopted to trigger a more competitive labor market.

Specifically, three were the major reforms implemented with the objectives of improving labor market flexibility. The first reform known as Legge Treu was approved in 1997. It represents a milestone in the history of the recent Italian labor market. Some of the major innovations brought by Law-196/1997 are the regulation of agency contracts and collaboration contracts and the relaxation of the rules for the utilization of fixed-term contracts and apprenticeships. Few years later, with Law-368/2001, the Italian legal system by implementing a 1999 EU Directive removed the strict rules for adoption of short-term contracts and allowed firms to use short-term contracts under many different circumstances according to organizational, productive and technical needs.[7] The most recent reform took place in 2003 with Law-30/2003. This law, known as Legge Biagi, introduced new additional forms of atypical contracts (such as job on call and job sharing) and introduced several modifications to the vocational training contract. However, the main novelty was the relaxation of the rules for the utilization of apprenticeship contracts. Specifically, the age eligibility was extended and the possibility to perform on the job training within the firm (instead of outsourcing it to specific external institutions) was introduced. These changes were made in order to make the apprenticeship contract more appealing for firms and therefore to promote their utilization.

While the 2001 reform was meant to increase flexibility by relaxing the rules for the utilization of short-term contracts, its implementation was not immediate, but delayed due to technical aspects delegated for regulation to unions' collective agreements. Indeed, the renegotiation of collective bargaining agreements that implemented the new contracts at the sectoral level only occurred in some industries, with contracts signed mostly in 2005 and 2006 (Cappel-

[5] Average rate across 19 European countries. 15-24 years old cohort. Unemployment duration longer than 1 year. Year: 1990. Source: OECD.

[6] Average rate across 19 European countries. Year: 1990. Source: OECD.

[7] According to some scholars (Aimo, 2006; Cappellari et al., 2012), the relaxation of these rules and the liberalization of short-term contracts created a sort of confusion among employers regarding the actual requirements for adoption. Specifically, it was not clear whether employers could use short-term contract also for activities which are not of temporary nature. Moreover, in case of court disputes, the applicability relied too much on the interpretations of the judges, causing delays and disincentives for the adoption of the contracts and therefore distorting the objective of the law.

lari et al. (2012)). Similarly, the 2003 reform could be implemented only after the regions had issued regulations regarding the training content of apprenticeship contracts. None of the regions passed any guidelines in 2003 and 2004, few (Emilia Romagna and Tuscany) did in 2005 and some others (Friuli Venezia Giulia, Marche, Sardinia, and the autonomous province of Bolzano) in 2006. Moreover, some regions enacted experimental projects for the new contract in some specific sectors (mainly in retail trade, banking and hotel and restaurants) starting from 2005.

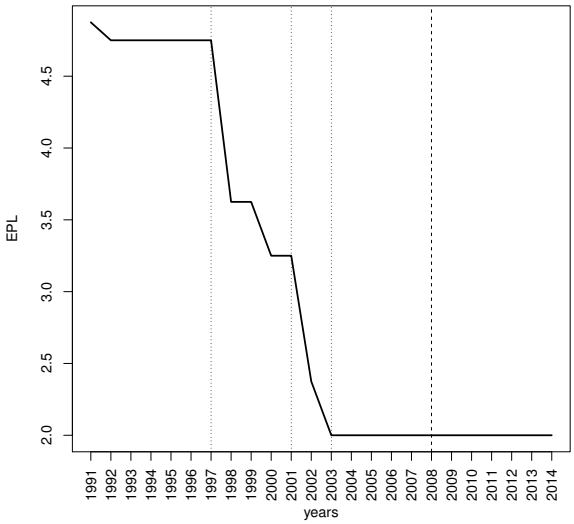


Figure 1. Employment Protection Index in Italy. Source: OECD.

3 The model

In this section we develop a search model where individuals with different skill levels are allowed to migrate across regions characterized by different economic conditions. We study the general equilibrium and the factors affecting the probability to migrate.

3.1 A search model with firing costs and migration

There is a continuum of risk-neutral individuals of measure 1 with a common fixed discount rate r. They belong to the labour force, hence they are either employed or unemployed.

Individuals are heterogeneous with respect to productivity as each individual's idiosyncratic productivity level ϵ_i is drawn from a log-normal distribution with parameters μ_i and σ_i^2.

$$\epsilon_i \sim \ln \mathcal{N}\left(\mu_i, \sigma_i^2\right), \tag{1}$$

There are two regions $j \in (h, l)$, which differ for the productivity distribution of their firms: on average one contains high-productive (h) firms, while the other low-productive (l) firms.

These difference in productivities can arise from higher endowment of physical capital, better public infrastructures, etc.. The productivity distribution of firms is assumed to be log-normal with parameters μ_j and σ_j, that is:

$$y_j \sim \ln \mathcal{N}\left(\mu_j, \sigma_j^2\right), \tag{2}$$

where $\mu_h > \mu_l$.

The productivity of individual i working in region j, p_{ij}, is given by the product of the individual productivity ϵ_i and of firm-specific regional productivity y_j, i.e. $p_{ij}^s = y_j \epsilon_i$. By construction, p_{ij} is log-normally distributed, i.e. $p_{ij} \sim \ln \mathcal{N}\left(\mu_{ij}, \sigma_{ij}^2\right)$, where $\mu_{ij} = \mu_j + \mu_i$ and $\sigma_{ij}^2 = \sigma_j^2 + \sigma_i^2$, with moments:

$$\begin{aligned} \mathbf{E}[p_{ij}] &= e^{\mu_{ij} + \sigma_{ij}^2/2} \text{ and} \\ \mathbf{Var}[p_{ij}] &= e^{(2\mu_{ij} + \sigma_{ij}^2)}(e^{\sigma_{ij}^2} - 1). \end{aligned} \tag{3}$$

At each instant any individual, either employed or unemployed, can decide to migrate from l to h by paying a fixed cost c_{lh} (or viceversa from h to l paying a fixed cost c_{hl}). The total labour force (employed and unemployed) is equal to the sum of all individuals living in l and h, i.e., $L_h + L_l = 1$.[8]

3.1.1 Firms

Following the standard framework proposed in Pissarides (2000), the firm's Bellman's equation for a filled position in region h satisfies (see in particular Eq. (9.9) in Pissarides, 2000):

$$rJ_h = p_h - w_h + \delta \left[V_h - J_h - F w_h\right], \tag{4}$$

where $p_h - w_h$ is the individual productivity net of the salary paid to the worker, δ is an idiosyncratic shock which terminates the match, leaving the firm with an open vacancy. Every time a shock hits and destroys a match, the employer is required to pay firing costs F, which are *proportional* to the worker's salary (differently Pissarides, 2000 assumes that it is proportional to p_h).

The firm's Bellman's equation for opening a vacancy in region h is given by:

$$rV_h = -c + q\left(\theta_h\right)\left[\mathbf{E}\left[J_h\right] - V_h\right] \tag{5}$$

where $q(\theta_h)$ is the rate at which a vacancy is filled, c is the vacancy cost, and $\mathbf{E}\left[J_h\right]$ is the expected value of firm in region h to fill a vacancy.

[8]For simplicity in what follows we omit the superscript i even though it is crucial to keep in mind that the productivity is individual-specific.

3.1.2 Workers

The Bellman's equations for employed and unemployed workers read:

$$rW_h = w_h + \delta \left[U_h - W_h\right] \text{ and} \tag{6}$$

$$rU_h = bw_h + \theta_h q(\theta_h) \left[\mathbf{E}\left[W_h\right] - U_h\right], \tag{7}$$

where $\mathbf{E}\left[W_h\right]$ is the expected value to find a job in region h. Unemployed workers receive unemployment benefits b which are proportional to their wage.

The wage w_h is chosen to maximize the Nash product:

$$(J_h + Fw_h - V_h)^{\beta}(W_h - U_h)^{(1-\beta)}, \tag{8}$$

where β is the bargaining power of firms.

Firing cost F enters into the maximization process since firms internalize the cost they will have to pay in case of match destruction.

3.1.3 Matching in the Labour Market

Firms and workers come together via a matching function $m(v_h, u_h)$ where u_h is the rate of unemployment and v_h is the vacancy rate in region h. This function is twice differentiable, increasing in its arguments, and exhibits constant returns to scale. The flow of matches for a vacancy may be defined as $m(u_h, v_h)/v_h = q(\theta_h)$, which is a decreasing function of θ_h, representing the tightness of the labour market (v_h/u_h). The flow of matches for an unemployed worker may be defined as $m(u_h, v_h)/u_h = \theta_h q(\theta_h) \equiv \phi(\theta_h)$, which is an increasing function.

As standard in the literature (Pissarides, 2000), we assume that the matching function is shaped as a Cobb-Douglas, with α being the elasticity with respect to unemployment and A being the matching efficiency:

$$m(v_h, u_h) = Au_h^{\alpha} v_h^{1-\alpha}. \tag{9}$$

We can rewrite Eq. (9) as

$$q(\theta_h) = A(\theta_h)^{-\alpha}. \tag{10}$$

The rate at which an unemployed worker finds a job $\phi(\theta_h)$ reads:

$$\phi(\theta_h) = \theta_h q(\theta_h) = A(\theta_h)^{1-\alpha}, \tag{11}$$

with elasticity equal to:

$$\frac{q'(\theta_h)\theta_h}{q(\theta_h)} = -\alpha \tag{12}$$

3.1.4 Equilibrium

The free-entry condition for firms implies that $V_h = 0$. Therefore, from Eq. (5):

$$\mathbf{E}\left[J_h\right] = \frac{c}{\theta_h} \tag{13}$$

while from Eq. (4)

$$J_h = \frac{p_h - (1+\delta F)\, w_t}{r+\delta}. \tag{14}$$

Taking the expectation of J_h and plunging in Eq. (13)

$$\theta_h = \frac{c\,(r+\delta)}{\bar{p}_h - (1+\delta F)\,\bar{w}_t}, \tag{15}$$

where $\bar{p}_h \equiv \mathbf{E}\left[p_h\right]$ is the expected value, i.e. the mean value of p_h, while $\bar{w}_h \equiv \mathbf{E}\left[w_h\right]$ is the expected value of w_h.

The wage setting condition is obtained as a result of the Nash bargaining maximization and reads as:

$$w_h = \frac{\beta(p_h + c\theta_h)}{1-(1-\beta)b - \beta F(r+\phi(\theta_h))} \tag{16}$$

From Eq. (**??**) we get:

$$\theta_h = \left[\frac{A(p_h - (1+\delta F)w_h)}{(r+\delta)c}\right]^{1/\alpha}. \tag{17}$$

It follows that the equilibrium value of the wage in region h is:

$$w_h = \beta p_h + (1-\beta)bw_h + \beta c\left[\frac{A(p_h-(1+\delta F)w_h)}{(r+\delta)c}\right]^{\frac{1}{\alpha}} + \beta F w_h\left[r + A\left[\frac{A(p_h-(1+\delta F)w_h)}{(r+\delta)c}\right]^{\frac{1-\alpha}{\alpha}}\right] \tag{18}$$

Symmetrically, we can write the Bellman's equations for workers and firms in region l, and describe its matching process and its fundamental equilibrium equations.

Moreover, we can compute the flows of workers across status and regions:

$$u_h = \frac{\delta e_h + i^u_{hl}}{\theta_h q(\theta_h) + e^u_{hl}} \tag{19}$$

Total unemployment in region h is given by employed workers who lose their job at rate δ, employed and unemployed immigrant from region l (i^u_{hl}) net of unemployed workers in region h who find a job within the same region $\theta_h q(\theta_h)$ and emigrants towards region l (e^u_{hl}). We can rewrite Equation 19 as:

$$\theta_h q(\theta_h) = \frac{\delta e_h + i^u_{lh} - e^u_{hl}u_h}{u_h}. \tag{20}$$

Using the Nash bargaining equation and the value function for an open vacancy, we can

rewrite the unemployed workers' Bellman's equation as:

$$U_h = \frac{bw_h}{r} + \theta_h q(\theta_h) \frac{\beta}{(1-\beta)r} \left[\frac{c}{q(\theta_h)} + Fw_h \right] \tag{21}$$

Substituting Eq. (20) we get:

$$U_h = \frac{bw_h}{r} + \frac{1}{r} \left(\frac{\delta e_h + p^u_{lh} u_l - e^u_{hl} u_h}{u_h} \right) \frac{\beta}{(1-\beta)} \left[\frac{c}{A^{\frac{1}{1-\alpha}} \left(\frac{\delta e_h + i^u_{lh} - e^u_{hl} u_h}{u_h} \right)^{\frac{-\alpha}{1-\alpha}}} + Fw_h \right] \tag{22}$$

The probability that an employed worker living in region l moves for economical reasons to region h is given by the sum of two probabilities: the probability that the value of working in region h minus the moving cost c_{lh} is higher than the value of working in region l and the probability that the value of being unemployed in region h minus the moving cost c_{lh} is higher than the value of working in region l. That is:

$$p^e_{lh} = Pr[(rW_h - c_{lh}) > rW_l] + Pr[(rU_h - c_{lh}) > rW_l]. \tag{23}$$

Since

$$W_h - W_l = \frac{(w_h - w_l) + \delta(U_h - U_l)}{r + \delta}$$
$$U_h - W_l = \frac{bw_h + \theta q(\theta) W_h}{r + \theta q(\theta)} - \frac{w_l + \delta U_l}{r + \delta}$$

Equation 23 reads:

$$p^e_{lh} = Pr \left[\frac{w_h - w_l + \delta(U_h - U_l)}{r + \delta} > \frac{c_{lh}}{r} \right] + Pr \left[\frac{bw_h + \theta_h q(\theta_h) W_h}{r + \theta_h q(\theta_h)} - \frac{w_l + \delta U_l}{r + \delta} > \frac{c_{lh}}{r} \right]. \tag{24}$$

By substituting in the equilibrium values for wages and rearranging the equation above, we get:

$$p^e_{lh} = Pr\left(\frac{\beta r(p_h + c\theta_h)}{[1-(1-\beta)b-\beta F(r+\theta_h q(\theta_h))]}\left[r+\delta b+\delta\theta_h q(\theta_h)\frac{\beta}{1-\beta}F\right]\right.$$
$$-\frac{\beta r(p_l + c\theta_l)}{[1-(1-\beta)b-\beta F(r+\theta_l q(\theta_l))]}\left[r+\delta b+\delta\theta_l q(\theta_l)\frac{\beta}{1-\beta}F\right]$$
$$\left.+\frac{\delta\beta c}{1-\beta}(\theta_h-\theta_l)-(r+\delta)c_{lh}\right) > 0$$
$$+Pr\left(\frac{\beta r(p_h + c\theta_h)}{[1-(1-\beta)b-\beta F(r+\theta_h q(\theta_h))]}\left[\frac{r(r+\delta)b+r\phi(\theta_h)+\delta\phi(\theta_h)b+\frac{\beta}{1-\beta}\phi(\theta_h)^2\delta F}{(r+\delta)(r+\phi(\theta_h))}\right]\right.$$
$$+\frac{\delta\theta_h^2 q(\theta_h)\frac{\beta}{(1-\beta)}c}{(r+\delta)(r+\phi(\theta_h))}-\left(\frac{\beta r(p_l + c\theta_l)}{[1-(1-\beta)b-\beta F(r+\theta_l q(\theta_l))]}\right)\left(\frac{r+\delta b+\delta\phi(\theta_l)\frac{\beta}{1-\beta}F}{(r+\delta)}\right)$$
$$\left.-\frac{\delta\frac{\beta}{1-\beta}\theta_l c}{(r+\delta)}-c_{lh}\right) > 0 \quad (25)$$

Moreover, since the total labour force is the sum of the labour force in the two regions, it turns out that the unemployment rate in region h reads:

$$u_h = \frac{\delta e_h + i^u_{lh}u_l}{A^{\frac{1}{\alpha}}\left[\frac{(p_h-(1+\delta F)w_h)}{(r+\delta)c}\right]^{\frac{1-\alpha}{\alpha}} + e^u_{hl}} \quad (26)$$

The probability that an unemployed worker living in region l moves for economical reasons to region h is given by the probability that the value of being unemployed in region h minus the moving cost c_{lh} is higher than the value of being unemployed in region l. That is:

$$p^u_{lh} = Pr\left(\frac{\beta(p_h + c\theta_h)}{[1-(1-\beta)b-\beta F(r+\theta_h q(\theta_h))]}(b+\beta F\theta_h q(\theta_h))\right.$$
$$-\frac{\beta(p_l + c\theta_l)}{[1-(1-\beta)b-\beta F(r+\theta_l q(\theta_l))]}(b+\beta F\theta_l q(\theta_l))$$
$$\left.+\frac{\beta}{(1-\beta)}[c(\theta_h-\theta_l)-c_{lh}\right) > 0$$

TO BE CONCLUDED

3.2 Quantitativa Explorations of Equilibrium

TO BE WRITTEN

4 Empirical application

4.1 Data

We use census data of inter-regional mobility in Italy available from ISTAT (Italian National Statistical Institute) to construct the probabilities of migrate from one region for the period 2000-2014. This data frame is due to limitation in the census data. However, it allows us to evaluate the effect of the major labour market reforms implemented in Italy in the late nineties-early twenties to increase the flexibility of the market.

Figure 2a and 2b show the regional migration rates in 2000 and 2014 respectively. As expected, in 2000 Southern regions are characterized by high migration rates, ranging from 0.57% to 2.43%. Central and Northern regions are instead characterized by lower migration rates (ranging from 0.28% to 0.57%) with the exception of Liguria, Valle d'Aosta, Trento and Bolzano regions. This geographical pattern is still present in 2014 although the migration rates are lower, ranging from 0.42% to 0.76%, with the only exception of Molise region.

We complement the data set using the European Regional Database elaborated by Cambridge Econometrics for the regional unemployment rate, the Bank of Italy's Survey on Household Income and Wealth (SHIW) to construct the regional house prices and nominal wages and, finally, the European Labour Force Survey (ELFS) to get the percentage of temporary contracts in each region that we use as a proxy for the regional employment protection legislation.[9] [10]

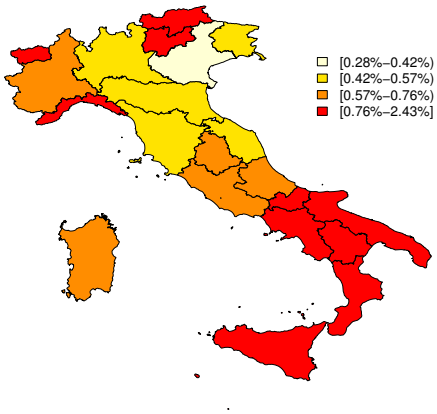
The percentages of temporary contract derived from the ELFS are showed in Figure 3. In particular, in Figure 3a the OECD EPL index for Italy is reported together with the aggregate percentage of temporary contracts, showing the high correlation between these two indicators. In particular, we can observe how the decrease in EPL is associated with the increase in the use of the temporary contracts. Moreover, Figure 3b shows a high heterogeneity in the use of such temporary contracts across regions in 2013, ranging from 2.01% to 14.08%.

4.2 Estimates

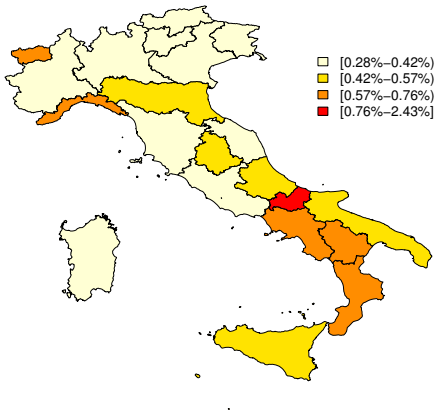
In this paper we follow the approach of Molho (1987) and Pissarides and McMaster (1990) and separates the decision to migrate and the destination choice, since the former decision includes the evaluation of an activity among a set of alternative activities, while the second one determines a destination choice among a set of competitive destinations. Therefore we focus on the push factors that provide incentives to people to migrate by specifying the probability

[9] In particular, the regional EPL index is defined as $(1 - pTemp)$ where $pTemp$ is the regional percentage of temporary contracts.,

[10] The ELFS provides individual level data on measures of mobility as well as demographic and socio-economic information. In particular, it is possible to define a migrant as a person whose residence at the time of the interview is located in a different NUTS2 region with respect to the residence one year before. This would allow us to have information at different level of aggregations (individual, regional, etc.) both on migration and economic characteristics. However, the regional migration rate estimated from this source are not reliable when compared to those derived from the census.

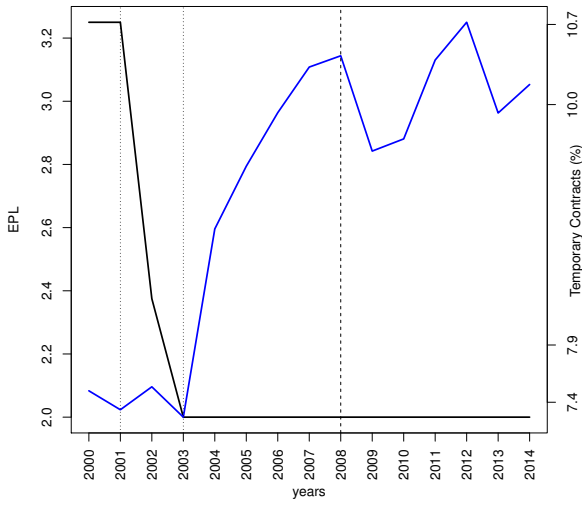


(a) Regional migration rate in 2000

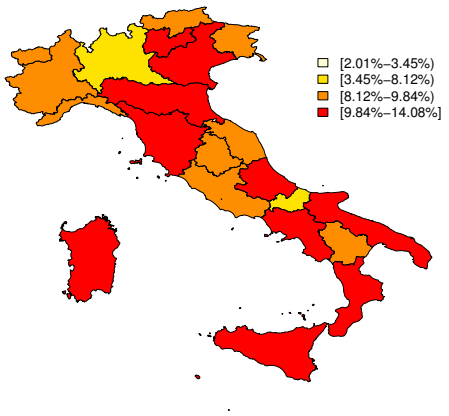


(b) Regional migration rate in 2014

Figure 2. Regional migration rate in 2000 and 2014.



(a) EPL and temporary contracts



(b) Regional temporary contracts in 2013

Figure 3. EPL and temporary contracts.

of migrating as a function of features of the region of origin.

Consequently, we regress the annual probability to migrate from one region at time t over a set of explanatory variables (unemployment rate, nominal wages, house price and regional EPL) which are taken as ratio of origin-to-possible-destinations values at time $t-1$. In particular, in the construction of the ratio we consider two different averages of the values of the possible destinations: i) a simple average, where all possible destinations have the same weight; and, ii) a weighted average, where each destination takes as weight the 2-year lag transition probabilities. Finally, in order to take into account the amenities and network effects in the decision to migrate we consider two different specifications: a) a fixed effects estimation, and b) a pooled estimation in which we also include the geographical distance as regressor. All the specifications include time dummies.

The results reported in Table **??** show that in the pooled estimations (1) and (3) the geographical distance positively affect the probability of migrate. This result is mainly due to the fact that most of the internal migration in Italy is from the Southern regions which are also the most isolated (see Figure 2). The unemployment rate is never significantly different from zero, while the nominal wages is negative and significant only in specification (4): the higher the wage in the origin region with respect to the possible destinations, the lower the probability of migrate. On the contrary, when the cost of living in the origin region is higher compared to the possible destinations the probability of migrate is higher. Our index of regional EPL is negative and significant (with the only exception of specification (3)), showing that the lower the rigidity of the labour market the higher the probability of migrate from the region. This result is in line with the predictions of our model where a lower F (that is, higher flexibility of the labour market) implies a lower probability of migrate for employed worker but a much higher probability of migrate of unemployed worker. Hence, we expect that the negative sign of the regional EPL coefficient is driven by the stronger effect of the labour market flexibilization on the probability of migrate of unemployed. This guess is corroborate by Figure 4 showing that over the sample period the regional migration rate of unemployed is always higher than the regional migration rate of employed (the only exceptions are in 2011 and 2012).[11] According to the adjusted R^2, the best specification is (5) when the weighted average is used ot construct the origin-to-possible-destinations values and regional fixed effects are included, which explains 54% of the variability of the regional migration in Italy over the period 2000-2014.

5 Conclusions

TO BE WRITTEN

[11] These migration rates are derived from the ELFS. As pointed above, these estimated migration rates are not reliable especially when different regions are compared. However, the regional characteristics of the labour market can be consistently estimated as showed for the percentage of temporary contracts. Therefore, we might expect this evidence to be reliable.

	Dependent variable: Prob. Migr.			
	Sample Average		*Weighted Average*	
	(1)	(2)	(3)	(4)
	Pooled	Fixed Effect	Pooled	Fixed Effect
Geo. distance	0.00000**		0.00001***	
	(0.00000)		(0.00000)	
Unemp. rate	−0.0002	0.0002	0.0002	0.0001
	(0.0003)	(0.001)	(0.0002)	(0.0003)
Nominal wages	−0.003	0.001	−0.003	−0.020***
	(0.002)	(0.002)	(0.002)	(0.006)
House price	0.001	0.007***	0.003***	0.018***
	(0.001)	(0.001)	(0.001)	(0.001)
Regional EPL	−0.002***	−0.003***	−0.0001	−0.006***
	(0.0004)	(0.0004)	(0.0002)	(0.0005)
Constant	0.009***		0.006***	
	(0.002)		(0.002)	
Time dummies	YES	YES	YES	YES
Observations	315	315	315	315
Adjusted R^2	0.281	0.268	0.229	0.541
F Statistic	14.420***	27.038***	10.280***	85.525***
Note:				*p<0.1; **p<0.05; ***p<0.01

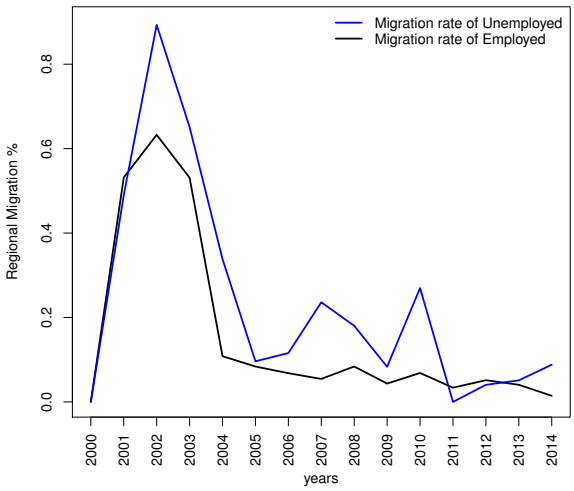


Figure 4. Source: Our calculation using ELFS data.

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