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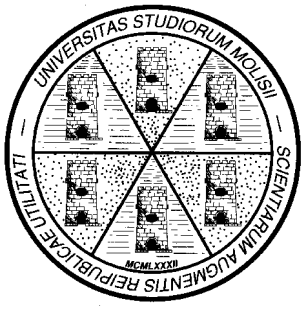

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Wage Expectations in Northen and Southern Italian Regions. An Interpretation Based on Psychological and Social Factors

by

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Wage expectations in northern and southern Italian regions. An interpretation based on psychological and social factors.[1]

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Abstract

Individual wage expectations of the Italian unemployed are studied. The analysis is carried out separately for the north-central and southern Italian regions. Results show a marked difference in expectations formation, with the northern unemployed using information more efficiently. A tentative explanation based on psychological and social factors is offered.

1 Introduction

Regional and demographic unemployment differentials are often related to differences in actual and expected wages. In this field, the relevance of reservation wages for understanding unemployment phenomena and labor market dynamics is undisputed. In Italy, for example, it is often argued that people living in the South experience high rate of unemployment due to high reservation wages.

Measurement problems and time instability of reservation wages, if exceptions to the basic microeconomic model characterizing the optimal stopping rule are considered, suggest looking at an alternative source of information on expected earnings which may be more easily gathered by households economic surveys. Hence, in this work we analyze a component of reservation wages, the expected wages, and we evaluate the contribution of individual factors to wage expectations formation of the unemployed across individuals. The relevance of this exercise rests on the need for an assessment of the main difference characterizing the use of available information in different regional contexts.

We analyze how individual wage expectations are influenced by personal and household characteristics in northern and southern Italian regions. In our empirical analysis we adopt an exploratory approach that exploits semiparametric additive models in order to uncover possible influential nonlinearities in the data. We believe this is an interesting exercise in order to evaluate the extent of local labor market effects on wage expectations in different regional environments.

The results point out that people living in different geographical areas relate their wage expectations to different variables and this leads us to question standard mainstream model of expectation formation and to introduce sociological and psychological lines of arguments.

Clearly, the issue may be relevant in designing labor market policies: for example, measures aimed at enhancing labor force participation might be ineffective, since reservation wages may remain anchored to levels inconsistent with the prevailing labor market conditions. At the same time, the goal of adjusting expected wages according to the actual labor market situation may be addressed by improving the availability and transmission of information.

The paper is structured as follows. In the next section we define and outline the main theoretical arguments about wage expectations. Section 3 contains a description of the data and some useful summary statistics. Section 4 deals with the main empirical analysis and Section 5 discusses the relevance of psychological and sociological factors in shaping wage expectations. Section 6 is devoted to the interpretation of the results. The last

Section concludes.

2 Wage Expectations in Economic Theory

The meaning of the term "expectation" is broadly discussed in the economic literature and associated to "attitudes, dispositions or psychological states of mind" related to events the outcomes of which are uncertain.[1] The nature of uncertainty, the pervasiveness of customs and habits in the society and the degree to which regularities exist and are exploited by individuals determine the possibility of modelling expectations. In labor economics, expected wages are a useful concept to characterize individual economic behavior in the labor market and to derive important macroeconomic insights on unemployment dynamics. Economic theory stresses the role of wage expectations in determining wage setting mechanisms in an uncompetitive framework emphasizing the importance of this variable in contractual-union models and in efficiency wage setting. Furthermore, it is observed that wage expectations are essential components of reservation wages determination in job search models. In this case, given standard simple assumptions on risk neutrality, the optimal stopping rule predicts that individuals will equate the expected gains from continued search to the search costs. The individual judgement of potential gains from search depends on individual characteristics and attributes influencing labor productivity in the future employment and on the subjective perception of the job opportunities. To be more precise, if the job searcher has imperfect information about the n parameters, $\sigma \equiv (\sigma_1, \sigma_2, ...\sigma_n)$ of the wage distribution $\phi(w;\sigma)$ and the wage structure changes over time, the process of expectation formation and the reservation wage are strictly dependent on the available information set. To form his conjectures, the job searcher assumes that his future wage will depend in part on conditions known to him at the moment he formulates his expectation, and in part on events that have not yet occurred. Hence, the individual prior distribution over the unknown parameters $h(\sigma)$, depends on the subjective distribution for uncertainty. The optimal individual behavior in search models depends on a set of additional assumptions on the form of the prior distributions (Rotschild, 1973) and on recall opportunities (Lipmann and McCall, 1976). Buchinsky and Leslie (1997), recently analyze the manner in which people update their beliefs about future distributions over time and accordingly modify their behavior pointing out that the effect of this learning process may not be satisfactorily captured by a traditional parametric static model. Comparing

[1] Katona, 1951 pp.52-3, and Pesaran, 1987.

different types of forecasting behaviors they find that the method used has significant effects on individual actions including the educational choice.

Building upon a well consolidated view, we conjecture that each unemployed individual i evaluates his own expected wage taking into account his labor market attributes and his subjective estimate of the probability of receiving a job offer as:

$$w_{it}^{e} = f\left(S_{it}, X_{it}, D_{it}, B_{it}, u_t, \widehat{\omega}_{it}, \widehat{\lambda}_{it}\right). \tag{1}$$

where w^e denotes the expected wage, $f(\cdot)$ is a possibly non linear function, S is education, X is experience, D are personal attributes like age, sex, marital status, etc., B are households characteristics, u is the local rate of unemployment and t is a time index. $\widehat{\omega}_{it}$ denotes the information on the wages distribution known to the individual as of the beginning of time t: in practice, $\hat{\omega}_{it}$ may simply amount to a rough estimate of the local average wage.

Expression (1) forms the basis on which we build our empirical investigation on expected wages in different Italian regional contexts.

3 The data

Before introducing the description of the econometric methods used to estimate (1) a word of warning is necessary on the reliability of the expectation data that we use. There is a rather skeptical attitude towards expectational data based on the assumption that respondents to surveys may not answer the questions honestly. However, as pointed out by many authors (see Manski, 1990; Dominitz and Manski, 1994) there is not robust empirical evidence to condemn all expectations data and to prefer inference on expectations based on income realizations.[2] The data we use in this paper are taken from the Bank of Italy's *survey of Italian household income and wealth* carried out in March 1996 and referring to 1995 (SHIW95, hereafter). SHIW95 reports information about many individual and family characteristics, including individual positions in the job market during 1995 as well as at the time the enquiry was carried out. The individuals selected in this study are those who have declared being unemployed or first job seekers in March 1996, independently of their position in 1995.[3] Here we focus on the individual expected

[2] Italian expectations data have already been used *e.g.* by Guiso *et al.* (1992).

[3] Actually we can use only about a half of the entire SHIW95 sample because the information related to the professional status at the time of the enquiry is available only for a subset of the interviewed.

Table 1: Descriptive statistics of expected wages by geographic areas: millions of lire per year

	n	Min	1stQu	Median	Mean	3rdQu	Max
North-Center	243	1.6	13.0	16.3	17.3	20.3	60.0
South	441	1.0	11.1	14.1	15.3	18.7	81.0

Notes: n is the number of individuals considered in the sample. Min and Max denote the minimum and maximum observed values. 1stQu and 3rdQu are the first and third quartiles of the distribution, respectively.

wages over the next 12 months. Three pieces of information are available from SHIW95:

1. the minimum expected wage, conditionally upon having found a job, w_m;
2. the maximum expected wage, w_M, conditionally upon having found a job;
3. the subjective probability of getting less than $\bar{w} \equiv \frac{1}{2}(w_m + w_M)$, α.[4]

We compute the individual expected wage as

$$\mathcal{W} = \frac{1}{2}\left(w_m + \bar{w}\right)\alpha + \frac{1}{2}\left(\bar{w} + w_M\right)(1-\alpha)\,. \tag{2}$$

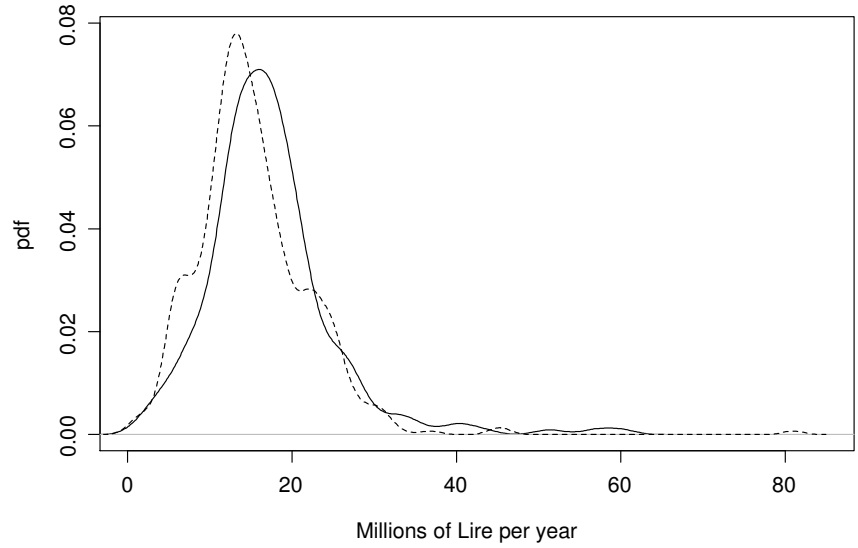
Note that $\mathcal{W}$ is the *conditional* expected wage, being conditional on having found and accepted a job. The *unconditional* expected wage should be weighted by the probability of finding (and accepting) a job.

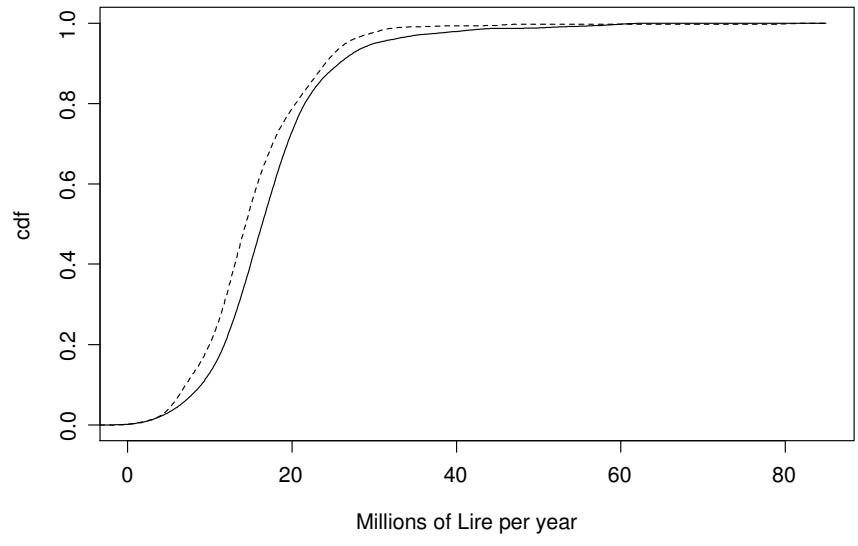
Some descriptive statistics of $\mathcal{W}$ are reported by geographical areas in table 1, while the estimated density (pdf) and cumulative distribution functions (cdf) are reported in figure 1. The different number of individuals selected in the North[5] ($n_N = 243$) and in the South ($n_S = 441$) reflects the different situation of the job market in the two areas of the country, the unemployment in the South being roughly double than in the North. The distribution of expected wages in the South seems to be shifted to the left with respect to

[4]The questions are so formulated: "Assuming that you remain in or find employment in the next 12 months, can you say what is the minimum overall ANNUAL amount you expect to earn [...]?". The same question is repeated for the maximum amount. The interviewer then calculates $X = (Min + Max)/2$ and poses the following question: "What is the probability that you will earn less than X?".

[5]For brevity we refer to the North-Center as "North" or "Northern regions".

Figure 1: Estimated density functions (pdf) and cumulative distribution functions (cdf) of individual income expectations in the North-Center (solid lines) and in the South (dashed lines). Bandwidths selected by Sheather and Jones' (1991) method.





the North. However, the highest expected values can be found in the South. These features mirror those of the distributions of the observed wages for the same areas (see *e.g.* Lupi and Ordine, 1998).[6]

Density estimation allows us to carry out a formal test of equality of distributions in the two areas. We compute the test in the form of a Cramér-von Mises test, as

$$CVM = \int \left[\hat{F}_N(\mathcal{W}) - \hat{F}_S(\mathcal{W})\right]^2 d\mathcal{W} \tag{3}$$

where $\hat{F}_N(\mathcal{W})$ and $\hat{F}_S(\mathcal{W})$ are the estimated cdf's of $\mathcal{W}$ in the Northern and Southern regions, respectively. However, while the conventional CVM test is computed over an estimated cdf and a fixed reference cdf, we use two estimated cdf's. Therefore, we utilize a bootstrap method to infer about the marginal significance of our test. Indicating by $\hat{f}_r$ ($r \in \{N, S\}$) the estimated pdf's, $R \gg 1$ couples of independent samples (each constituted of n_N and n_S observations) are bootstrapped under the null of equal distributions from $\hat{f}_r$ with r determined on the basis of the highest number of observations.[7] Then the achieved significance level (ASL) of the test is computed according to

$$ASL = R^{-1} \sum_{j=1}^{R} \mathbb{I}(CVM_j > CVM) \tag{4}$$

with CVM_j and CVM being the values of the CVM test on the j-th bootstrapped couple of samples and on the original samples, respectively, and with $\mathbb{I}(\cdot)$ being the indicator function. The test rejects the null of identical distributions for $ASL < \alpha_c$ (e.g., $ASL < 0.05$). This procedure applied to our data makes us to strongly reject the null of equal distributions, giving $CVM = 0.160$ and $ASL = 0.000$.[8]

[6] However, notice that in Lupi and Ordine (1998) the comparison is carried out over 4 geographical areas and using hourly (rather than annual) wages. Note also that, if a trimmed sample is used (excluding 2.5% of the distribution on both sides), the maximum value of $\mathcal{W}$ in the North is higher (34.0) than that observed in the South (30.0), while the minimum is equal (5.0) in the two areas. If trimming is carried out using a value of 0.5% for both sides of the distribution we still have that the highest value in the north is larger (51.4) than the corresponding value in the South (36.8). In this case Southern regions exhibit also a smaller minimum vale (1.7) than the Northern ones (3.2).

[7] In practice, since $n_S > n_N$, samples are botstrapped from $\hat{f}_S$. Details on how to bootstrap from estimated densities can be found in Silverman (1986) or Efron and Tibshirani (1993).

[8] Some Monte Carlo results concerning the reliability of the bootstrap-based procedure are reported in a previous version of this paper: see De Paola, Lupi, and Ordine, 2001.

According to these results we conclude that it is not just the mean, but the whole distribution of the expected wages that is significantly shifted to the left in the Southern regions with respect to the corresponding distribution in the North of the country. To the extent that wage expectations are reflected on the reservation wages, it seems that something else must be important in explaining Southern unemployment.[9] A different question is if the shift to the left is large enough to have any impact. However, we feel that an important issue is if the conditional (on individual characteristics) rather than the unconditional distributions are the relevant entities to look at. In the rest of the paper, we will try to investigate this aspect.

4 Modelling wage expectations

Our model is an empirical analog of (1). On the basis of the arguments and results exposed in the previous sections we think that wage expectation formation may be different in the north-central and southern regions. For this reason we model the two regions separately. According to our previous research (Lupi and Ordine, 1998 and 2000) it might well be that a finer regional disaggregation would be even more appropriate, but we would loose too many degrees of freedom.

We explicitly consider the possibility that linear models be too simple to approximate unemployeds' wage expectations. In order to explore different patterns without imposing special parametric alternatives, we use *additive models* which are a very general class of non parametric models defined as (see *e.g.* Hastie and Tibshirani, 1990)

$$y = \alpha + \sum_{j=1}^{N} s_j(x_j) + \varepsilon, \tag{5}$$

where the s_j's are nonparametric univariate functions of the x's (one for each x_j), the ε's are independent of the x_j's, and $\mathsf{E}(\varepsilon) = 0$, $\mathsf{V}(\varepsilon) = \sigma_\varepsilon^2$. Given their generality, additive models are a powerful exploratory tool. Standard linear models are special cases of additive models. Since we want to investigate the effect of some variables after controlling for specific effects, the model that is most interesting to us is a semiparametric modification of (5), in which some control variables $\mathbf{z}$ enter the model linearly, that is

$$y = c + \mathbf{z}\boldsymbol{\beta} + \sum_{j=1}^{N} s_j(x_j) + \varepsilon. \tag{6}$$

[9] See also Mazzotta (1998).

Given the risk of over-interpreting the model, we start from a general unrestricted model and restrict it stepwise in order to retain only significant factors, as suggested *e.g.* by Hastie and Tibshirani (1990). Even if the distributional result is only approximate, a check about the significance of each regressor (both in the parametric and in the nonparametric part of the model) is carried out using the pseudo-F (Hastie and Tibshirani, 1990; Bowman and Azzalini, 1997)

$$F = \frac{(RSS_0 - RSS)/(df_0 - df)}{RSS/df} \overset{\text{approx}}{\sim} F_{(df_0-df),df}$$

where the index "0" indicates the restricted model estimated excluding the regressor of which we want to test the significance.[10]

The variables included in the unrestricted models are reported in Table 2. Note that, since the finest available geographical detail in SHIW95 corresponds to regions, regional dummies are added that capture such factors as average local (regional) wages and unemployment. Regional dummies are considered as "pure" control variables, so they are not sequentially eliminated from the models. Sequential simplification diagnostics are reported in tables 3 and 4. The simplified models are as follows:

$$\begin{aligned} ley_{NC} &= c + s(\text{ly95}) + s(\text{lage}) + s(\text{rentpc}) + s(\text{educat}) + \\ &\quad \alpha_{NC} \cdot \text{female} + \sum_{i=3}^{12} \beta_{NC,i} \text{r}_i \\ ley_S &= c + s(\text{ly95fnpc}) + s(\text{lprob}) + s(\text{larf}) + s(\text{conspc}) + \\ &\quad \alpha_S \cdot \text{female} + \sum_{i=14}^{20} \beta_{S,i} \text{r}_i \end{aligned}$$

The estimated nonparametric factors for the North-Central regions and for the South are reported in figures 2 and 3, respectively.

Being a female reduces wage expectations both in the Northern and Southern regions (the coefficient being highly significant and equal to -0.226 and -0.184, respectively).

As far as nonparametric factors are concerned, we find in Northern regions significant effects of personal income in the previous year, age, education, and

[10] Significance has been computed for each variable using an approximate F-test based on the comparison of the fitted residual sum of squares obtained including and excluding the relevant variable (see *e.g.*, Hastie, 1992). Asymptotic inference for additive models is a field of current research (see Hastie and Tibshirani, 1990 and Schimek and Turlach, 1999).

Table 2: Variables used in the analysis.

Variable	Variable description	transform	role
ly95	personal 1995 labour income	log	s
ly95fnpc	average 1995 labour income of the other members of the family	log	s
lprob	subjective probability of finding a job	log	s
lastemp	last employment (if any)	none	s
lage	age	log	s
lexpe	number of past positions	log	s
lycrf	per capita household financial income	log	s
larf	per capita household real assets	log	s
lpff	per capita household liabilities	log	s
rentpc	per capita rent or imputed rent for the house where the family lives	log	s
conspc	per capita consumption	log	s
educat	level of education	none	s
female	dummy: 1 if female	none	p
head	dummy: 1 if head of household	none	p
bhealth	dummy: 1 if in bad health state	none	p
smalcity	dummy: 1 if lives in a small city	none	p
fjs	dummy: 1 if first job seeker	none	p
ltun	dummy: 1 if long term unemployed	none	p
r3-r20	regional dummies	none	C

Notes: "s" denotes a nonparametric factor, "p" a variable that enters linearly, and "C" a control variable that is not excluded even if not significant. Lastemp is a categorical variable taking 10 values from low-qualified to high-qualified jobs. Educat is a categorical variable taking 7 values from 1 (no education) to 7 (university degree). r3-r20 are regional dummies: r2 is absent due to lack of observations in the small region Valle d'Aosta in our sample.

Table 3: Sequential simplification tests: North-Center.

Model	Resid. Df	Resid. Dev	Test	Df	Deviance	F Value	Pr(F)
1	172	15.6086					
2 vs 1	176	15.7604	-s(conspc)	-4	-0.1518	0.4182	0.7954
3 vs 2	180	16.0207	-s(ly95fnpc)	-4	-0.2603	0.7175	0.5809
4 vs 3	184	16.2790	-s(larf)	-4	-0.2583	0.7115	0.5852
5 vs 4	188	16.8480	-s(lastemp)	-4	-0.5690	1.5673	0.1852
6 vs 5	192	17.1325	-s(lycrf)	-4	-0.2845	0.7839	0.5371
7 vs 6	196	17.5183	-s(lexpe)	-4	-0.3858	1.0624	0.3768
8 vs 7	200	18.1300	-s(lprob)	-4	-0.6117	1.6848	0.1556
9 vs 8	204	19.1130	-s(rentpc)	-4	-0.9830	2.7073	0.0319
10 vs 8	204	18.9533	-s(lpff)	-4	-0.8232	2.2717	0.0629
11 vs 10	208	20.5235	-s(ly95)	-4	-1.5703	4.2286	0.0026
12 vs 10	208	20.1155	-s(rentpc)	-4	-1.1622	3.1263	0.0159
13 vs 10	208	21.1116	-s(educat)	-4	-2.1583	5.8082	0.0002
14 vs 10	208	21.1116	-s(educat)	-4	-2.1583	5.8082	0.0002
15 vs 10	205	20.8680	-female	-1	-1.9147	20.6091	0.0000
16 vs 10	205	19.1335	-head	-1	-0.1802	1.9396	0.1652
17 vs 16	206	19.2717	-bhealth	-1	-0.1383	1.4816	0.2249
18 vs 17	207	19.2872	-smalcity	-1	-0.0154	0.1651	0.6849
19 vs 18	208	19.3396	-fjs	-1	-0.0524	0.5622	0.4542
20 vs 19	209	19.3504	-ltun	-1	-0.0108	0.1161	0.7336

Table 4: Sequential simplification tests: South.

	Resid. Df	Resid. Dev	Test	Df	Deviance	F Value	Pr(F)
1	370	52.9280					
2 vs 1	374	53.1195	-s(lexpe)	-4	-0.1915	0.3345	0.8548
3 vs 2	378	53.7340	-s(lpff)	-4	-0.6146	1.0737	0.3692
4 vs 3	385	54.4692	-s(lage, 7)	-7	-0.7352	0.7345	0.6427
5 vs 4	389	54.8852	-s(lycrf)	-4	-0.4159	0.7265	0.5743
6 vs 5	393	55.3658	-s(rentpc)	-4	-0.4806	0.8400	0.5005
7 vs 6	397	55.8608	-s(lastemp)	-4	-0.4949	0.8648	0.4852
8 vs 7	401	57.1187	-s(educat)	-4	-1.2579	2.1984	0.0687
9 vs 8	405	57.8882	-s(ly95)	-4	-0.7695	1.3448	0.2528
10 vs 9	409	59.4396	-s(conspc)	-4	-1.5514	2.7103	0.0300
11 vs 9	409	59.4229	-s(larf)	-4	-1.5347	2.6825	0.0312
12 vs 9	409	59.7340	-s(ly95fnpc)	-4	-1.8458	3.2287	0.0126
13 vs 9	409	59.3664	-s(lprob)	-4	-1.4782	2.5851	0.0366
14 vs 9	406	60.5184	-female	-1	-2.6302	18.4016	0.0000
15 vs 9	406	58.0284	-head	-1	-0.1402	0.9811	0.3225
16 vs 15	407	58.4406	-bhealth	-1	-0.4121	2.8834	0.0903
17 vs 16	408	58.4410	-smalcity	-1	-0.0004	0.0029	0.9568
18 vs 17	409	58.4435	-fjs	-1	-0.0025	0.0174	0.8953
19 vs 18	410	58.6278	-ltun	-1	-0.1843	1.2900	0.2567

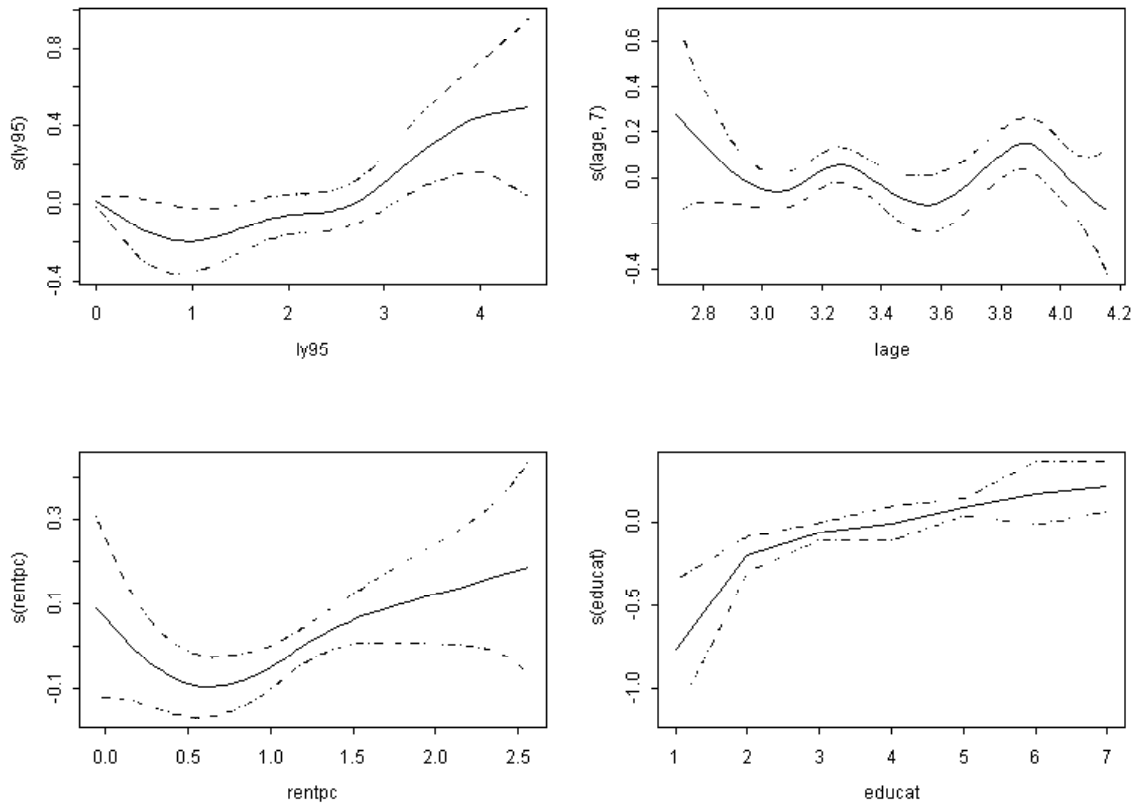


Figure 2: North-Center: estimated nonparametric factors and pointwise 2 × standard error bands.

per capita rent. The effect of individual age on wage expectations is on average fairly flat, but shows two evident "humps" corresponding to about 26 and 45 years, respectively. The effect of education is increasing and broadly linear for all degrees but impose a penalty for those who do not possess any school degree. Expected wages are also increasing in personal income over the previous year, but those who did not earn any income during 1995 show on average higher wage expectations than those who realized low income levels.

In southern regions, education levels do not appear to shape wage expectations in the same measure as in the North. Overall, the estimated factor for education is not significant. Only variables related to the households' wealth and social status appear to influence wage expectations significantly.

From an economic point of view, it emerges that the mechanisms of wage

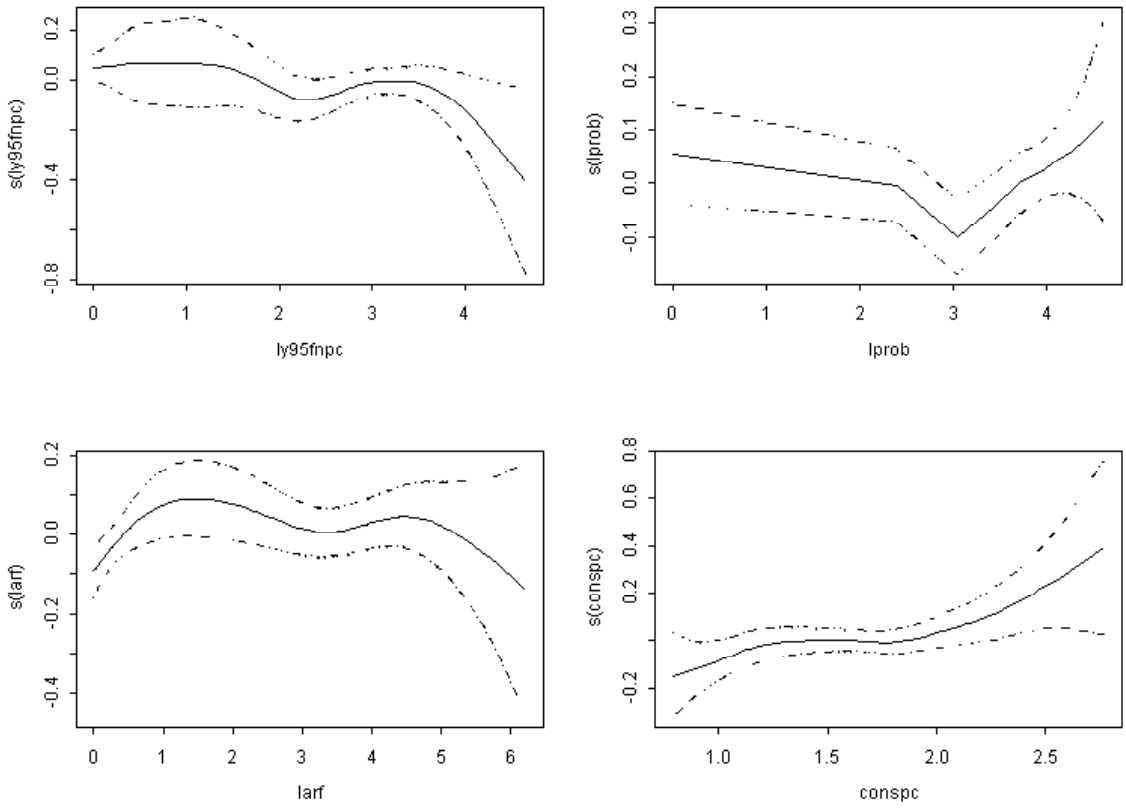


Figure 3: South: estimated nonparametric factors and pointwise 2 × standard error bands.

expectations formation are rather different in the two areas. Most important to us is the fact that the additive model estimated on northern regions data can "explain" a significantly larger fraction of the variance than the model for the South (45.5% against 19.2%). In fact, wage expectations in the South seem to be hardly predictable using the standard theory we have exploited up to now.

5 Psychological and sociological effects in the wage expectation adjustment process

Interesting hypothesis on expectation formation may be gathered from some recent theories of individual choice that consider the influence of sociological and psychological variables (Akerlof and Dickens 1982, Benabou and Tirole 2002, Gilboa and Schmeidler 1995, 1997)

As argued by Solow (1990) "wage rates and jobs are not exactly like other prices and quantities. They are much more deeply involved in the way people see themselves, think about their social status and evaluate whether they are getting a fair shake out of society" (p.36).

If sociological and psychological variables are meaningful for the examination of labor market, there is no reason to exclude them from wage expectation analysis. Considering the importance that jobs and wages have in defining social status, wage expectation formation might be influenced by variables such as social classes or groups with which individuals want to identify themselves. On the other hand, the social meaning of jobs may justify a complex individual psychology, that can generate some kind of malaise when self-evaluation is not confirmed by the treatment they receive in the labor market.

Strategies aimed at avoiding this type of discomfort are considered by the theory of cognitive dissonance (Festinger, 1957), which is based on the idea that there is a tendency for individuals to seek consistency among their beliefs or behaviors. When there are inconsistencies among beliefs or behaviors, something must change to eliminate the dissonance. Thanks to the selection of received information, individuals can manipulate their own beliefs in order to eliminate any inconsistency. This type of psychological mechanism has been considered in economic analysis to explain some phenomena that were hard to understand on the ground of the traditional individual choice theory (Hirschman, 1970; Akerlof and Dickens, 1982; Rabin, 1994).

The idea that individuals may manipulate their own beliefs is also considered by the so-called egonomics (Schelling, 1978, 1980; Kavka, 1991). Ac-

cording to this approach individuals are characterized by multiple selves and use strategies aimed at solving personal conflicts. In a recent paper, Benabou and Tirole (2002) consider the manipulation of self-confidence and the use of a selective memory that filters agreeable information as a mean of automatic suppression of unpleasant information.

As self-confidence often depends on what individuals obtain in the labor market, it might be difficult for an individual to accept the prospect of a low wage. Of course, individuals pay a price in following these strategies, as they possibly renounce the wage they would have gained had they accepted a lower paid job. However, following these strategies does not imply that individuals will never adjust their wage expectations, but only that the adjustment process might be characterized by some new aspect, generally not considered in economic theory.

In what follows we describe in greater detail the adjustment of expected wages to labor market conditions.

Individuals form their wage expectations under incomplete information. They formulate an initial wage expectation that does not include all the information regarding labor market conditions. This is also because of the influence of personal ambition, of educational and social variables, of reference wages like those established in collective bargaining. Given a certain initial wage expectation w^*, we consider the effect of psychological variables on the adjustment process to the new information available on the local labor market conditions. When the latter indicate that the initial expectation is too high, it would be psychologically costly for individuals to change their wage expectation and in order to avoid this cost they might ignore information, facing a lower probability of finding a job.

More precisely, we assume that beginning from w^*, individuals formulate their wage expectation w_i^e taking into account new information deriving from their own experience and from the experience of other subjects with whom they interact. Individuals compare their initial wage expectation level w^* to the wage w_j gained by other people. Generally, they conceived this information as being more or less relevant depending on whether they perceive themselves as being "similar" to the other individuals with which they compare. Consequently, it is likely that wage expectations are especially influenced by wages gained by individuals who have similar household and professional characteristics.

Moreover, as explained above, this kind of comparison could be influenced by psychological elements: when the observed wage is too low compared to the initial wage expectation level, individuals might attempt to reduce the deriving psychological discomfort looking for differences in their own characteristics and those of the considered people. Individuals try to justify the

low wage gained by the observed person pointing to aspects that characterize that person (do not characterize that person) but do not characterize themselves (but characterize themselves).

This process seem to operate in many circumstances. For example, it has been noticed that when mountain walkers hear of a fellow walker who has died in an accident they always point to some precaution that the died person did not take but they always do[11]. As far as wage expectations are concerned, this reducing psychological costs strategy might induce individuals to take in consideration also variables that generally are less relevant for the determination of wage expectations as social variables, or might bring them to give importance to minor differences in personal, household and professional characteristics[12]. A similar phenomenon might emerge even when individuals refer to their own experience, if the accepted wage is far below w^*, they may try to avoid psychological discomfort considering their actual condition as temporary and not relevant for future prospects.

Individuals can follow two strategies: maintaining their initial beliefs avoiding information that do not support them, or choose new beliefs consistent with the received information. When the information is ambiguous the first strategy is more likely. In fact, when information is poor and ambiguous it becomes easy for the individual to avoid the discomfort deriving from the downward adaptation of w^*. Moreover, ambiguity permits him to choose the most agreeable information. On the contrary, if all the information the individual gets do not give support to his initial wage expectation level the adjustment of initial beliefs will be a more effective strategy.

It is possible to formalize this process of wage expectation formation referring to Kahneman and Tversky's prospect theory and assuming that the initial expected wage of individual i will adjust to the available information on the basis of the distance between the initial expectation and the observed wage gained by individual j, $(w^* - w_j)$, and the closeness between the characteristics of individuals i and j. In order to make notation simpler, the wage gained in the past by individual i is considered as the wage obtained by a subject j. Formally, the value of the adjustment from the initial level is given by a function $v(w_j - w^*)$, with $v'(w_j - w^*) > 0$ and $v"(w_j - w^*) < 0$ when the

[11] We are gratefull to Robert Sugden for this example.

[12] For example, a young woman that has just fulfilled an educational course in order to become an accountant could exclusively consider the wage perceived by other women who have the same education and have found a job that pays an appropriate wage. Generally, this phenomenon involves the refusal to accept jobs that do not require the acquired qualification. In our example the refusal could regard a job as seller, waitress, etc. Therefore, individuals could especially refer to people that have similar characteristics and have found a job that pays a wage close to the individuals' initial wage expectation level.

observed wage is greater than the initial expected wage, $(w_j - w^*) > 0$, and $v"(w_j - w^*) > 0$ when the observed wage is lower than the initial expected wage, $(w_j - w^*) < 0$. This means that with $(w_j - w^*) < 0$ the individual will be risk-taker, since he will under-correct his expectations and the resulting expected wage will be too high with respect to similar individuals, therefore reducing employment opportunities. On the contrary, with $(w_j - w^*) > 0$ the individual is risk-averse, in the sense that he will maintain an expected wage that will be lower than necessary. Moreover, we assume that the closeness to the educational (S), professional (X), personal (D), household (B), and social characteristics (C), of individual i to individual j is measured by a function $s_{ij} = g(S, X, D, B, C)$ (the past characteristics of individual i are considered as the characteristics of a subject j with personal and professional characteristics equal to those that subject i had in the past). The function s_{ij} is continuous and assumes values in the range [0, 1]. The value 1 appears if the individual considers himself identical to the observed subject and the value 0 when he considers himself completely different to the observed subject. The process of wage expectation formation can be represented as:

$$w_i^e = w^* + \frac{1}{n} \sum_{j=1}^{n} v(w_j - w^*) s_{ij}, \qquad w_j \neq w^* \tag{7}$$

where n is the number of individuals considered by individual i for comparison.

According to this interpretation the wage expectation formation process involves more complex aspects than those usually considered in standard economic theory, and is not only influenced by the economic environment, but also by social and psychological elements. The interaction between socio-economic elements and psychological aspects may imply different wage expectations for individuals with identical attributes.

6 An interpretation of the empirical results

On the basis of the considerations expressed in the previous section we may argue that since the labor market information in the South is less diffuse and more ambiguous than in the North the divergence between the econometric model based on the standard theory and the wage expectation mechanism is larger. The greater ambiguity in the information available in the South may depend on the divergence between paid wages and wages established by collective bargaining. In acquiring qualifications or degrees people often refer to the national market and wages established by collective bargaining could

be considered as a reference point. Besides, wage differentials and employment opportunities between public and private sector may be relevant. In the North and the South of Italy public wages are almost equal in nominal term although real wage differentials are undisputable. Moreover, opportunities in the private sector are better in the North and public employment is much more attractive in the South where job chances in the private sector are very poor. As argued by Alesina *et al.* (1999), this situation "implies that for private entrepreneurs it is expensive to offer jobs as attractive as those offered by the public sector". As support to this argument they bring some empirical evidence about the scarce job search activity of people employed in the public sector. Our paper shows that even if the number of expected public job offers is not great enough to rationally justify a high wage expectation, the payment of public wages that are higher than private ones can generate distortions that bring people to not adjust their wage expectations in order to take into account private sector information. In this case, social variables and family experiences can be relevant in the attitude to adjust expected wages. In fact, avoidance or discounting of information related to the sector that pays low wages will be more likely if the individual is part of a social group whose members are almost all employed in the sector that pays high wages. In this case the direct information he receives tends to confirm his aspiration level. Then public sector in the South can lead to a vicious circle for some new reason that adds to the many already discussed by the previously quoted study.

The quality and quantity of information on the labor market could also explain why education in the South is not important in defining wage expectations. Indeed, in this geographic area wage opportunities different levels of education are very similar since the main employer, the public sector, generally offers jobs without significant wage differentials.

Similarly, in a market characterized by a high rate of unemployment and by a lack of correspondence between wages and qualifications it can easily happen that people who in the past had a low wage compared to their initial wage expectation do not include it in the information set relevant for their process of wage expectation formation. On the contrary, if the individual perceives the past wage as adequate to his own personal and professional characteristics it will be relevant in defining his wage expectations. Further, the occurrence of a high wage expectation for people that never had a job may arise when individuals do not have the opportunity to directly understand the evaluation that the local labor market gives to their own characteristics.

Moreover, as discussed in the previous sections cognitive dissonance could bring the unemployed to give importance to variables that generally are not relevant in wage expectations, as social status. The positive influence of per-

capita consumption in the wage expectations of people living in the South may give support to this hypothesis. In fact, some theorists since Veblen (1899) and Leibstein (1950) argue that social classes are defined on the basis of consumption levels. In any instances, the more cognitive dissonance or other similar effects are frequent, the more usual personal (and to some extent, household) characteristics are no longer representative of individuals' beliefs on future wages, so that it becomes particularly difficult to find any statistical model explaining the observed expectations.

On the basis of these considerations adjustment of wage expectation to labor market conditions would depend on emotions that obviously are very difficult to be enclosed in an econometric model at least because of measurement problems. Only when information becomes pervasive this emotional element tend to disappear. We think that this might highlight a partial, but plausible, description of wage expectations formation, especially in the South of the country.

7 Concluding remarks

In this paper we analyze the process of wage expectations formation in different labor market environments. We refer to Italian northern and southern regions and apply non-parametric techniques to individual data.

We find that the distribution of expected wages is significantly shifted to the left in the southern regions with respect to the corresponding distribution in the North-Center of the country. A significantly larger proportion of variance of individual expected wages is "explained" for the northern regions. We suspect that the mechanisms underlying wage expectations formation are rather different in the two areas, with a more efficient use of available information on the hand of the northern unemployed. At the same time, we argue that wage expectations in the South might show the effect induced by psychological elements that arises when the information gathered by the local labor market greatly diverge from the individual initial wage expectations. This psychological effect obviously may operate for unemployed living both in the South and in the North, but the ambiguity and scarcity of information that is peculiar to the southern labor market makes it more persistent in this area. This is not to say that individuals in the South do not consider the information available on the local labor market at all, but that the underlying process could be more complex and the adjustment slower, compared to others areas with different characteristics. In this sense we highlight that the issue may be relevant in designing labor market policies due to the possible ineffectiveness of measures enhancing labor force participation since reserva-

tion wages may be stacked at a level inconsistent with the local labor market conditions . At the same time, the aim of adjusting wage expectations to the real labor market environment may be addressed improving the availability and transmission of information.

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