E C O N O M I C S B U L L E T I N

Unemployment expectations across heterogeneous groups

Marco Malgarini
ISAE (Institute for Studies and Economic Analyses)

Patrizia Margani
ISAE (Institute for Studies and Economic Analyses)

Abstract

Relying on ISAE Italian data on consumers' unemployment expectations, we analyse the process of unemployment expectations formation across different socio-economic groups, distinguished according to their working condition. We find that employees are unable to correctly incorporate the effects of the Biagi Law. This evidence seems to show that these agents do not consider the new forms of temporary job, resulting from the application of Biagi Law, as proper "employment" and hence do not correctly interpreted them as a reduction in the unemployment trend. This aspect may provide some preliminary explanations for the evidence of Italian consumers' pessimism about the dynamics of the labour market, despite the falling of the unemployment rate occurred in Italy during the last years.

Citation: Malgarini, Marco and Patrizia Margani, (2008) "Unemployment expectations across heterogeneous groups." *Economics Bulletin*, Vol. 4, No. 31 pp. 1-6
Submitted: September 2, 2008. **Accepted:** November 2, 2008.
URL: http://economicsbulletin.vanderbilt.edu/2008/volume4/EB-08D10013A.pdf

1. Introduction

In recent years, the limitations of the conventional full-information rational expectation model (FI-RE) have become increasingly evident in macroeconomic research (Mankiw et al. 2003; Carroll, 2003; Reis, 2004; Demery and Duck, 2007). A more recent argument used to explain the irrationality of consumers amounts to introducing the assumption that agents have heterogeneous and partial information when formulating their predictions. In particular, three main sources of heterogeneity have been proposed in the literature. Agents might make heterogeneous expectations because they are using different models, they have different information sets or have different capabilities for processing information. Socio-economic characteristics (like income, gender or education) are generally associated to the second and the third source of heterogeneity (Pfajfar and Santoro, 2007). Moreover, consumers' demographic characteristics might represent a reliable proxy to assess the importance of financial constraints. As gathering information is costly, some agents may be particularly sensitive to acquire and rely on low-cost sources of information such as their own subjective perceptions. This immediate information might allow them to make forecasts which are sufficiently accurate to make the acquisition of more distant information - such as that contained in official published statistics - unnecessary. This is especially true when the official series are more difficult to interpret, more likely to be revised or where the definition of the variable itself is problematic (Demery and Duck, 2007).

The contribution of this paper is twofold. Differently to previous studies which concentrate on inflation expectations, this work confirms the existence of a significant degree of heterogeneity in the expectation formation process across groups, using Italian consumers' unemployment expectations provided by the Italian Institute for Studies and Economic Analyses (ISAE); data are disaggregated according to consumer's position in the labour force (employees, self-employed and inactive people). To our best knowledge, only Curtin's (2003) work investigates the formation process of unemployment expectations, but his results apply to consumers as a whole, not to different sub-groups. Moreover, our conclusions try to offer some preliminary plausible explanations for the Italian consumers' widespread pessimism about the dynamics of the labour market, which has been partly difficult to reconcile with the falling of the unemployment rate occurred during the last years.

2. The ISAE Survey of Consumers

The Survey of Consumers, conducted by Italian Institute for Studies and Economic Analyses (ISAE), has been available on a monthly basis since January 1982. The survey is realised on a monthly sample of 2.000 Italian consumers, changing each month, for a total of 24.000 persons interviewed per year. The sampling method is based on a two-stage technique, in a way that in the first step the sample is extracted from public telephone book registers and stratified according to the zone of residence and the size of municipalities, while in the second step a consumer within the household (recognized by the telephone number) is selected on quota sampling according to gender (48,5% males, 51,5% females). There is only one question about labour market dynamics: households are asked whether they expect the number of unemployed people to increase, remain the same or fall over the next 12 months.

While the results of this survey are usually summarised in the form of a "balance statistic", computed as a difference among the proportion of respondents opting for an increase or a decrease, this provides only qualitative information on the likely direction of change, not on its magnitude. In the remainder of the paper, we follow Del Giovane and Sabbatini' s (2006) approach to quantify survey data. It is important to notice that data on the number of Italian unemployed people are available only since 1993. To allow for comparability with survey expectations and take into account for time gap, we use the 4-quarter change of the unemployment rate as dependent variable in the regression where the balance statistics of the unemployment expectations is used as the main explanatory variable. Nonetheless, preliminary

estimates indicate that data on unemployed people in the next twelve months show a strong correlation with the change of the unemployment rate.

As far as the socioeconomic groups under scrutiny are concerned, we focus on respondents disaggregated according to their working condition (employees, self-employed and inactive people).

3. The Rational Expectation Hypothesis

According to the tradition, the commonly representation of the Rational Expectation Hypothesis (REH) takes as the rational expectation of a variable its conditional mathematical expectation (see for example Sargent and Wallace, 1976):

$$X_t^e = E(X|\ \Omega_{t-i}) \quad (1)$$

where the variable X, the rate of change of the unemployment rate, is forecasted, the full information set at time t-i is represented by Ω_{t-i}, and E is the expectations operator.

Denoting the error of expectation by ξ_t, we have that $\xi_t = X - X_t^e$ or under the Rational Expectation Hypothesis that:

$$\xi_t = X_t - E(X|\ \Omega_{t-i}) \quad (2)$$

$$E(\xi_t|\ \Omega_{t-i}) = E\{[X_t - E(X|\ \Omega_{t-i})]\}|\ \Omega_{t-i} \quad (3)$$

Using the law of iterated expectations, we get that:

$$E(\xi_t|\ \Omega_{t-i}) = 0 \quad (4)$$

namely this means that the error of expectations conditioned on the available information set has zero means. The question of the definition and the construction of the information set Ω_{t-i} pertinent to consumers' expectations of unemployment is an important one. We take into account the Pesaran and Weale's (2005) approach to decompose the information set Ω_{t-i} into a public information set Ψ_{t-i} and an individual-specific private information set $\Phi_{t-i:}$

$$\Omega_{t-i} = \Psi_{t-i-m} \cup \Phi_{t-i} \quad (5)$$

Such characterization is equivalent to see the variable to be forecasted as having a number of different forces acting upon it, and hence as the sum of a number of separate processes. For simplicity, here we only consider two influences: one is aggregate and so common to all; the other is idiosyncratic. A logical hypothesis at this point is to consider variables coming from both macroeconomic indicators (GDP growth, past value of unemployment rate, inflation) pertinent to the public information Ψ_{t-i}, and subjective economic evaluations on the economy and household's condition proper instead to the private information Φ_{t-i}. Notice that the variables included in the vector representing the public information are available at time t-i, but are referred to the period t-i-m, allowing for the delay *m* in the publication of the official statistical data.

From this characterization, we can test the Rational Expectations Hypothesis with the following regression:

$$(\Delta^4 u_t - {}_{t-1}\Delta^4 u^e{}_{k,\,t-1}) = \alpha_k + \beta_k \Phi_{k,\,t-1} + \gamma_k \Psi_{t-1-m} + \varepsilon_{k,t} \quad (6)$$

where the dependent variable is the error of expectations given by the difference between the observed 4-quarter change of the unemployment rate and the expected 4-quarter change of the unemployment rate, α is a constant term, Φ_k is a vector of parameters that includes group-specific private information and Ψ a vector of parameters including commonly public information. Private information data are derived from the ISAE survey and include assessments and expectations on consumers prices, on the country's economic condition, on household's personal economic condition and assessments on household's financial situation. Subjective group-specific perceptions might play an important role as "emotive factors" in determining and influencing the dynamics of labour market different individuals perceive. As macroeconomic indicators, besides GDP growth, past value of unemployment rate and inflation, we also include three policy-shift dummies to capture three important innovation occurred in the Italian labour market legislation during the last years. In particular, a regime shift emerged in the second quarter of 1994 with the introduction of temporary works (Costantini and de Nardis, 2007), in the first quarter of 1997

with the introduction of flexibility at a contractual level (Treu Law - L. 196/97), and in the first quarter of 2003 with the approval of the so-called Biagi Law (L. 30/03). From a theoretical standpoint, all this three major innovations were designed to reduce the unemployment rate and resulted in an actual easing of labour market conditions (Bertola and Garibaldi, 2003).

The REH implies that $\alpha_k = \beta_k = \gamma_k = 0$, so that there is no information capable of improving agents' forecasts. Both survey variables and macroeconomic series have been preliminary tested for stationarity, appropriately differencing in the case they result to be characterised by the presence of unit root.

4. Results

Table 1 presents the results for rationality for the overall population of respondents and for the demographic groups, disaggregated according to their working condition. Notice that evidence of no serial autocorrelation or functional form emerge from the analysis of the residuals.

Generally speaking, our estimates reject the hypothesis of REH. We find that the error of expectations is significantly correlated with the dummy taking into account the effects of the Biagi Law and with subjective beliefs on the personal economic and financial situation. Our results suggest that the general features outlined for the overall sample are generally preserved at a more disaggregated level. Nevertheless, some differences among groups emerged. One interesting finding is that employees are unable to correctly incorporate the effects of the Biagi Law, whilst rationality failure for self-employed and inactive people mainly stems from psychological factors.

Looking at inflation expectations, Bryan and Venkatu (2001) argue that some agents might use group-specific inflation as a benchmark for their forecasts and this may be a possible explanation of the observed differences in inflation expectations across demographic groups. Relying to the labour market dynamics, the vulnerability of workers in certain sectors to unemployment, contrasted with the relative security of employment opportunities in other sectors, are features of the labour market whose influence might explain differences in expectations. As a matter of fact, unemployment in Italy went down significantly between 2000 and 2006, due to the introduction of temporary contracts and temporary jobs. Therefore, we can argue that when employees are asked to provide forecasts on the dynamics of labour market, they do not consider these new forms of job as proper "employment" and hence do not correctly interpreted them as a reduction in the unemployment trend. In such circumstances, agents may have to rely on their own idiosyncratic experiences and perceptions and do not necessarily consider overall labour market dynamics when forecasting. This might drive up a higher degree of pessimism. We find these considerations in line with some recent studies on happiness, which found that individual unemployment has a large negative impact on subjective well-being, measured as self-reported level of happiness or life satisfaction (Dolan et. al. 2008).

Conversely, self-employed and inactive people's error of expectation seem to depend less on changes in the Italian labour market regulation and to be more correlated with past unemployment trends. In this case, subjective perceptions of "economic distress" may play a role in determining the unemployment different agents perceive, possibly linked with a slow dynamic of disposable income.

We acknowledge that these aspects are rather important and we think that it is possible to retrieve some valuable information about the unemployment expectation formation process by exploiting the micro dimension of survey data. We further explore these aspects considering data on consumer's age, gender or region of residence. For example, as there are considerable geographical differences in the Italian labour market, with the South of Italy experienced an unemployment rate between two to five higher than the North (Caponi, 2008), it is possible to think that this evidence might be reflected in the dynamic pattern of unemployment expectations.

Table 1 - Testing for rationality of consumers' unemployment expectations

	Employees	**Self-employed**	**Inactive**	**Total**
Constant	0.043	-0.033	-0.089	-0.013
	(0.689)	(0.725)	(0.388)	(0.898)
FAM_{t-1}	-0.016	-0.005	0.016	-0.022
	(0.173)	(0.277)	(0.117)	(0.077)
FAM_{t-1}^{e}	-0.012	-0.005	-0.016	-0.016
	(0.103)	(0.273)	(0.003)	(0.036)
$FINA_{t-1}$	-0.003	-0.008	0.005	-0.022
	(0.738)	(0.011)	(0.452)	(0.046)
$ECON_{t-1}$	0.000	-0.002	-0.003	-0.002
	(0.903)	(0.290)	(0.351)	(0.614)
$ECON_{t-1}^{e}$	0.003	0.000	-0.001	0.004
	(0.304)	(0.964)	(0.430)	(0.256)
P_{t-1}	-0.002	0.000	0.001	-0.001
	(0.549)	(0.970)	(0.461)	(0.587)
P_{t-1}^{e}	-0.001	-0.001	-0.004	-0.001
	(0.751)	(0.834)	(0.118)	(0.778)
$Inflation_{t-i}$	0.505	0.986	0.961	0.647
	(0.637)	(0.457)	(0.431)	(0.559)
GDP_{t-i}	-1.930	-2.890	-1.818	-1.214
	(0.381)	(0.131)	(0.341)	(0.556)
$\Delta^4 u_{t-i}$	0.067	0.143	0.136	0.081
	(0.175)	(0.001)	(0.001)	(0.066)
Contract changes	-0.023	-0.019	0.045	0.012
	(0.725)	(0.770)	(0.571)	(0.834)
Treu law	0.011	-0.035	-0.056	0.016
	(0.882)	(0.665)	(0.501)	(0.841)
Biagi law	-0.149	-0.077	-0.091	-0.179
	(0.009)	(0.170)	(0.147)	(0.002)
Adjusted R^2	0.25	0.21	0.26	0.27
χ^2 ($\alpha_k=\beta_k=\gamma_k=0$) (a)	0.00	0.00	0.00	0.00
Autocorrelation (b)	0.20	0.16	0.15	0.32
Normality (c)	0.88	0.66	0.31	0.99
Functional form (d)	0.30	0.77	0.55	0.18
N. of observations	93	93	93	93

FAM=Economic situation of the family (assessments); FAM^e=Economic situation of the family (expectations); FINA=Financial situation of the household; ECON=Economic condition of the country (assessment); $ECON^e$=Economic condition of the country (expectations); P=Consumer prices development (last 12 months); P^e=Consumer prices development (next 12 months); GDP=4-quarter rate of growth of GDP; Inflation=4-quarter rate of change of Consumer Price Index; u= Unemployment rate.
p-value in brackets.
a) p-value of Wald test on the joint significance of the parameters;
b) p-value of the Breusch-Godfrey Test for 4^{th} order autocorrelation;
c) p-value of the Jarque-Bera test;
d) p-value of the Ramsey Reset test

5. Conclusions

This paper analysed the process of unemployment expectations formation across different socio-economic groups, distinguished according to their working condition. The attention for this process arises from the general widespread assumption that different groups entail different degrees of access and different capacities to process information. As gathering information is generally costly, some agents might rely on low-cost sources of information such as their own subjective perceptions to form their forecasts about future unemployment. One interesting finding is that employees are unable to correctly incorporate the effects of the Biagi Law. This evidence seems to point out that these agents are more likely to form unemployment expectations assuming as a reference point their own specific experiences, and do not observe overall labour market dynamics when forecasting. They especially do not consider the new forms of temporary job, resulting from the application of Biagi Law, as proper "employment" and hence do not correctly interpreted them as a reduction in the unemployment trend. This aspect may provide some preliminary plausible explanations for the evidence of Italian consumers' pessimism about the dynamics of the labour market, despite the falling of the unemployment rate occurred in Italy during the last years.

References

Bertola G., Garibaldi G. (2003) "The Structure and History of Italian Unemployment". *CESifo Working Paper,* n. 907

Caponi V. (2008), "Centralized Wage Determination and the Regional Unemployment Differences: The Case of Italy", *IZA Discussion Paper*, n. 3592, July

Bryan M.F. and Venkatu G. (2001) "The demography of inflation opinion surveys", *Economic Commentary,* Federal Reserve Bank of Cleveland, October

Carroll C.D. (2003) "Macroeconomic expectations of households and professional forecasters", *Quarterly Journal of Economics,* 118, 269–298

Costantini M., de Nardis S. (2007) "Estimates of Structural Changes in the Wage Equation: Some Evidence for Italy", *ISAE Working Paper*, n. 86, Rome

Curtin R. T. (2003) "Unemployment expectations: the impact of private information on income uncertainty", *Review of Income and Wealth*, 49 (4), 539-554

Del Giovane P. and Sabbatini R. (2006) "Perceived and Measured Inflation after the Launch of the Euro: Explaining the Gap in Italy", *Il Giornale degli Economisti e Annali d'Economia,* 65(2), 155-192

Devery D. and Duck N. W. (2007) "The theory of rational expectations and the interpretation of macroeconomic data", *Journal of Macroeconomics,* 29, 1-18

Dolan, P., Peasgood, T. and White, M. (2008) Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being, *Journal of Economic Psychology*, 29, 94-122

Mankiw, N. G., R. Reis, and J. Wolfers (2003) "Disagreement about Inflation Expectations", *NBER Working Paper*, n. 9796.

Pesaran M.K. and Weale M. (2005) "Survey Expectations", in *Handbook of Economic Forecasting,* ed. by G. Elliott, C.W. Granger and A. Timmermann, North-Holland, Amsterdam.

Pfajfar, D. and E. Santoro (2007) "Asymmetries in Inflation Expectation Formation Across Demographic Groups", mimeo. University of Cambridge

Reis R. (2004) "Inattentive Consumers", *NBER Working Paper*, n. 10883

Sargent T.J. and Wallace N. (1976) "Rational Expectations and the Theory of Economic Policy", *Journal of Monetary Economics*, 2, 169-183