Temporary employment and labour productivity: the influence of the perceived probability of entering a stable job

by *Luigi Frey*, *Emanuela Ghignoni* and *Gabriella Pappadà*[*]

Abstract

The paper is devoted to discussing the thesis, recently indicated on the basis of Swiss evidence, that temporary employees present higher labour productivity than permanent employees because of higher effort.
The thesis is discussed first theoretically. Secondly, the paper examines some Italian and European empirical results based on Labour Force Surveys and European Community Household Panel. The paper concludes by considering the public labour policies necessary to improve labour productivity, notwithstanding the growing rate of temporary jobs in countries like Italy.

JEL Classification: M51, J24, J28
Key words: Temporary employment, Labour productivity, Job satisfaction.

1. Introduction

Productivity may be defined from different points of view (see the discussion introduced by Levitan and Werneke, 1984, pp. 3-4). From the worker's point of view, productivity can be defined as "effort" made in the production processes during a given period of time. From the manager's point of view, productivity may be defined in terms of quantity of production obtained by a labour unit in a given period of time. From the entrepreneur's point of view, productivity can be defined in terms of profits obtained during a given period of time. From the consumer's point of view, productivity can be defined in terms of the quality and prices of the goods and services.

The current increase of temporary work has induced the hypothesis that this kind of work would creates a more productivity from managers and entrepreneurs point of view. The hypothesis is based on the assumption that workers are induced to a higher effort if they are employed temporarily, because they supply more working hours and thus exploit working time more intensively. However this hypothesis may not be correct; a higher effort does not necessarily mean a higher quantity of production for a labour unit (by unit of labour input).

Assuming that the hypothesis could be adequately tested, on the basis of the Swiss experience (Engellandt, Riphahn, 2005), it would also be necessary to show that such an effort is not made only temporarily and can produce higher productivity from other points of view. In fact, research on precarious employment (see, for example, the results of the comparative international research ESOPE, published on Quaderni di Economia del Lavoro, Frey, Croce, eds., n. 73, 2002) suggests that the possible higher effort can be performed to improve monetary and non-monetary working conditions, with special references to transforming temporary work into permanent work within a reasonable period of time; thus being unsuccessful in this aim could discourage workers, leading towards a reduction of such an effort. For this reason, the effects on the labour productivity would be temporary and uncertain.

[*] Department of Public Economics, University of Rome La Sapienza
frey@dep.eco.uniroma1.it, ghignoni@dep.eco.uniroma1.it, pappada@uniroma1.it

Moreover, a unit of labour performed by a temporary worker risks producing a lower result than a unit of labour performed by a permanent worker with experience in the productive process. In fact, a harder effort does not necessarily mean a correspondent higher level of productivity from the point of view of the manager and the entrepreneur. It was observed (see Levitan, Werneke, 1984, p. 4) that if a worker's effort was a satisfactory indicator of labour productivity, the Egyptian Pyramids would be the most productive organizational structure in man's experience. It would thus be necessary that temporary workers can achieve a higher productivity from other points of view. The flexibility connected to temporary work can have positive impacts on meeting organizational and technological changes. In the new corporate structures this can mean improvements in labour flexibility. But, research provides evidence that temporary workers are less well-trained than permanent ones because of uncertain return of investments for the enterprise. This causes lack of investment in human capital with possible negative consequences in labour performance and working conditions in the medium period.

Some microeconomic research carried out in Italy shows that some aspects of labour flexibility can have positive effects on innovations and labour productivity (see Zanetti, 2000). However, if the labour flexibility is accompanied by employment precariousness, the long-term effects on labour productivity are normally negative (Frey, Croce, eds., 2002; Frey, Pappadà, eds., 2004).

2. Hypotheses

In a recent paper Engellandt and Riphahn (2005) assert that temporary contracts provide "stepping stones" to move into permanent employment because they are used as a tool by the firm to screen a potential workforce. For this reason temporary employees have an incentive to provide more effort than permanent colleagues. Early studies about temporary contracts have been analysed by Booth et al. (2002), who assert that temporary workers' effort depends on the probability of career advancement. In accordance with such a theory, this paper intends to investigate the Italian experience in order to identify the differences in comparison with Swiss and Anglo-Saxon ones.

Research carried out in the United Kingdom and USA (Taylor, 2003) reinforces the importance of internal labour flexibility (flexible organizational arrangements, new management techniques) to promote innovation and competitiveness. The external labour flexibility (atypical labour contracts, lighter regulation framework) risks creating contingent workers with temporary contracts not compatible with the creation of workplaces that enhance performance and labour productivity in the sense of quantity and quality of goods and services produced by a unit of labour input.

This research points out that the abuse of temporary workers risks creating a barrier to competitiveness because high performance workplaces are based on the creation of stable and better motivated workforces, in a fully integrated working environment that promotes skills and innovation. It could be better to reply to globalisation exploiting a comparative advantage based on knowledge-based economy activity (as asserted by the Ricardo's International Trade theory).

In this paper, we focus on the issue that temporary employees' effort depends on the probability of moving into permanent employment. In fact, the current labour market trends show that Italian temporary workers are insecure about their job, which is considered "precarious". In the Swiss case analysed by Engellandt and Riphahn, temporary workers provide more unpaid overtime hours than permanent employees and register less missing work for illness or family reasons. This paper intends to distinguish the Italian experience, providing the following hypotheses:

- It is empirically confirmed that firms may encourage workers' effort through effort-based promotion schemes (Bratti, Staffolani, 2004). In our analysis, we consider as promotion schemes the perceived possibility of workers moving into a permanent contract. This hypothesis agrees with the Swiss point of view but with some relevant differences. Swiss and Anglo-Saxon empirical studies confirm that the temporary contract is used as a "stepping stone" into permanent contract, Italian empirical studies cannot confirm this. In

Italy, the probability of using temporary contracts as "stepping stones" is low and depends on the allocation of the job, the firm's size, the position held and mainly the worker's characteristics.

- In Italy, temporary contracts are often being renewed. Pursuing higher labour flexibility encourages the use of temporary contracts especially in an uncertain economic and social environment because employers can load the affected workers with risks and real labour costs. Firms use these contracts to adjust the workforce because in Italy *permanent workers* ("lavoratori a tempo indeterminato"), are highly protected by the law and by collective agreements (Booth, Doledo, Frank, 2002). Although temporary contracts are considered less expensive because they avoid inflexibility costs (Bentolila, Bertola, 1990; Bentolila, Saint Paul, 1994), some critics have underlined the disadvantages of creating such jobs and the lack of career opportunities attached to them (Farber, 1999; Arulampalon, Booth, 1998), with consequences of low effort and low loyalty of workers. The implied explanation for such a trend is a current move towards less advantageous labour contracts (the so-called atypical contracts) promoted by organizational, technical and market changes requiring more labour flexibility and weakening job security.
- Most Italian temporary contracts do not provide social protection in case of illness (no leave), maternity, ecc., whereas permanent jobs are very protected.
- In general, temporary labour contracts provide less human capital accumulation than permanent ones. This lack involves both non formal and informal learning: on the one side, enterprises are not motivated to invest in training because the tenure of the contract is not enough long to guarantee an adequate return of investment; on the other side, the short tenure of the contract provides a lower level of informal learning acquired on-the-job than that connected to a permanent job.

In addition, a variety of theoretical debates are based on the assumption that effort depends on theories of motivation.

Moreover, support for this approach may be found in the theories on dual labour market. Such theories sought to distinguish primary labour market, which concerns essentially permanent labour contracts, from secondary labour market that concerns essentially temporary contracts.

The current approach of "job satisfaction economics" (see Freeman, 2006; Frey, Pappadà, 2005) emphasizes the importance of job security among the working conditions assessing overall job satisfaction. Shifts the occupational structure may alter job satisfaction and as a consequence the motivation and the effort of certain groups of workers who risk remaining precarious employees.

On the basis of this evidence, our empirical analysis, emphasising the assumption that employees give priority to job security, focuses on the following hypotheses:

1. We assume that the workers having the perception of moving into a permanent contract is represented by the probability to move into permanent work in the macro-area where the workplace is located.
2. Workers are interested in being employed by the same firm in a permanent job in order to reduce mobility costs and to improve working conditions, for this reason temporary workers show higher effort.
3. We assume that workers' power bargaining is weaker than employers' one.
4. Temporary workers show different levels of effort, depending on local labour markets, firm size, education, age, gender and other individual characteristics of workers. We assume that people are able to balance personal characteristics, working conditions and labour market facets to come up with an overall assessment of the probability of moving into permanent labour contracts.

In section 3 we will test the above-mentioned set of hypotheses. To complete the analysis in terms of productivity from the point of view of manager/entrepreneur, we will also assume that temporary work in Italy is more flexible than permanent work. This would produce positive effects on labour productivity only in the short run and negative ones in a longer period, because of the

discouraging consequences of employment precariousness on workers' behaviour. To support such a hypothesis, in section 4 we will show that the Italian experience presents a growing incidence of temporary employment together with worse productivity performance, in terms of productivity per man/hour, than countries with a decreasing incidence of temporary employment.

3. The empirical analysis

This section is devoted to testing the above-mentioned hypotheses in the Italian experience. The tests are developed starting from a sample of workers on the European Community Household Panel for the Italian case. The ECHP is essentially a household longitudinal survey, based on a set of questions concerning individual job characteristics and work experience. The model analyses 6 waves of the European Community Household Panel dataset, carried out between 1996 and 2001[1]

In our empirical analysis, we consider two levels of bargained working hours: 40 hours a week assumed as full time contracts; 20 hours a week assumed as part time contracts. We use the (probability of) "overtime work" as an effort indicator, that is whether the individual works longer hours than spelled out in a given contract (40 hours if the individual has a full time contract and 20 hours if he has a part time contract).

First, we are concerned with whether the working hours are longer than the bargained ones, especially for temporary workers, so the "overtime work" is an indicator of the worker's effort. Second, we want to explore how the effort differs for groups of workers, defined by particular individual characteristics (such as gender, education, age and specific work experience) and by the characteristics of local labour markets. In particular, we focus on the subjective probability perceived by temporary workers to move to permanent labour contracts.

The simple probability of overtime by type of contract and sex is reported in table 1. The aggregated results confirm our expectation of a higher effort among temporary workers (especially if they do not have a regular contract). On the other hand, men generally appear to provide a higher level of effort than women, no matter the type of contract.

Table 1 - Overtime work by type of contract and sex (%)

Overtime work	Permanent contract	Temporary contract	Type of temporary contract			Total
			fixed/short term contract	casual work	Other arrangement	
Males and females						
No	43.09	40.08	42.49	34.94	38.78	42.69
Yes	56.91	59.92	57.51	65.06	61.22	57.31
Pearson chi2(3) = 28.8973 Pr. = 0.000*						
Males						
No	35.61	32.44	35.66	25.43	31.92	35.22
Yes	64.39	67.56	64.34	74.57	68.08	64.78
Pearson chi2(3) = 27.0866 Pr. = 0.000*						
Females						
No	54.82	49.91	51.10	49.87	45.82	54.10
Yes	45.18	50.09	48.90	50.13	54.18	45.90
Pearson chi2(3) = 16.8178 Pr. = 0.001*						

Source: elaborations on Eurostat data
Pearson chi^2 between "permanent contract" and 4 different types of "temporary contracts"

[1] . Due to the absence of PE0024 question (about the type of contract) in the first wave (1994), and to the lack of reliable data on the percentage of temporary contracts by sex and region in 1994 and 1995, we had to exclude these waves from the sample.

To perform a deeper analysis we could estimate the following simple probit model:

$$P_i = \alpha + \beta X_i + \varepsilon_i \qquad \text{where:} \qquad P_i = \begin{cases} 1 \text{ in case of overtime work} \\ 0 \text{ otherwise} \end{cases} \qquad [1]$$

where the set of independent variables ***X*** describes personal and socio-economic characteristics of the individuals, and the situation of local labour markets.

However the correlation between hours worked and temporary contracts may be influenced by some unobservable individual characteristics, simultaneously determining working time and type of contract. In order to mitigate the problem of unobservable heterogeneity we use panel data methods.

In this context unobserved heterogeneity across individuals may be accounted for by directly modelling it as a random or fixed effect. In any case, if we used fixed effect models it would be necessary to use only the observation for which the value of the dummy P_i in equation [1] changes over time ("movers"). In this case we would exclude from the analysis those individuals who never worked overtime and those who always did. For this reason we prefer to estimate a random effect probit model. We consider all the individuals in the ECHP waves from 3 to 8 (years 1996-2001) who work with a permanent contract, a temporary contract or a precarious[2] contract. Results are in table 2.

Since the probability of overwork may be correlated with the percentage of temporary workers at local level in a specific period, in accordance with the economic cycle, the test could involve endogeneity problems. In periods of expansion, there could be, at the same time, a rise in overwork and a higher rate of temporary workers, whereas in periods of retraction, there could be a reduction of both percentages. Since these two variables tend to be related and move in the same direction, it is necessary to reduce the problem of endogeneity present in the estimations where the two variables are included (tab. 4 and 5).

In order to limit the problem of endogeneity, a yearly variable, which takes into account the economic cycle for all the six waves considered in the estimation has been included. These yearly dummies, which should provide evidence of the higher or lower probability of overwork for each year with respect to 1996 (year of reference), do not show significant results except for 1998. In this year, the probability of overwork was lower and significant in comparison with 1996.

[2] . This means, in ECHP, PE024>1. We have 29,486 observations. For a description of data and variables, see Appendix.

Table 2 - Random effect probit model: permanent and temporary workers

Random-effects GLS regression
Number of obs = 7679
Group variable (i): pid
Number of groups = 2855

R-sq: within = 0.0251 Obs per group: min = 1
between = 0.4017 avg = 2.7
overall = 0.3677 max = 6

Random effects u_i ~ Gaussian Wald chi2(24) = 2087.15
corr(u_i, X) = 0 (assumed) Prob > chi2 = 0.0000

Variables	Coef.	Std. Err.	Z	P>|z|
1997	0.00565	0.013823	0.41	0.683
1998	-0.0392	0.013952	-2.81	0.005
1999	-0.02651	0.014325	-1.85	0.064
2000	-0.02041	0.014703	-1.39	0.165
2001	-0.00901	0.015139	-0.6	0.552
Age	-0.01225	0.006355	-1.93	0.054
Age squared	0.000126	7.59E-05	1.66	0.098
Females	-0.1916	0.014397	-13.31	0.000
Married	0.012735	0.02075	0.61	0.539
South	-0.11125	0.014047	-7.92	0.000
Bad Health	-0.01771	0.02782	-0.64	0.524
Secondary Education	-0.05685	0.020381	-2.79	0.005
Tertiary Education	-0.00357	0.022835	-0.16	0.876
Small and medium firm	-0.00416	0.011549	-0.36	0.719
Specific Experience	0.000917	0.001042	0.88	0.379
Manufacturing Industries	0.146631	0.01478	9.92	0.000
Elementary occupations	-0.06235	0.018281	-3.41	0.001
Public sector	-0.28977	0.014328	-20.22	0.000
Not overskilled	0.016715	0.010042	1.66	0.096
Not specific training	-0.017	0.010673	-1.59	0.111
Satisfied about working hours	-0.07106	0.009921	-7.16	0.000
Hours spent for children care	-7.1E-05	0.000309	-0.23	0.818
log(hourly wage)	-0.59815	0.043319	-13.81	0.000
Temporary work	0.079415	0.021772	3.65	0.000
Constant	1.758082	0.136852	12.85	0.000

sigma_u .28211721
sigma_e .28174636
rho .50065769 (fraction of variance due to u_i)

According to these results, the probability of overtime work is significantly lower for females, for southern workers, for individuals with a secondary level of education (compared to those with a lower level of education), in the Public sector and for people involved in unskilled occupation. On the other hand, people involved in the manufacturing sector seem to have a higher probability of working longer hours than contracted. Moreover the probability of overtime seems to decrease with higher hourly wages. In any case, temporary workers show a higher probability of doing overtime work. Nevertheless, according to our hypotheses, temporary workers would be well-disposed towards overtime work if they perceive they have a good probability of entering permanent employment in the same firm.

Table 3.a – Percentage of temporary contracts at regional level, Italy - 1996-2001, males

Eurostat macro-areas	Males					
	1996	1997	1998	1999	2000	2001
Valle d'Aosta, Piemonte, Liguria (*North West*)	3.9%	4.0%	4.8%	5.5%	6.3%	5.6%
Lombardia	4.0%	4.8%	4.9%	4.5%	5.4%	4.7%
Trentino A.Adige, Veneto, Friuli V.Giulia (*North East*)	5.3%	5.2%	5.6%	7.0%	6.9%	6.1%
Emilia Romagna	5.4%	6.2%	6.6%	6.6%	6.7%	8.1%
Toscana, Umbria, Marche (*Centre*)	4.6%	5.2%	5.6%	6.1%	7.4%	6.7%
Lazio	4.7%	4.8%	6.3%	7.5%	7.6%	7.3%
Abruzzo, Molise	5.2%	6.4%	7.8%	8.0%	6.9%	7.2%
Campania	8.4%	9.3%	10.2%	11.1%	11.0%	9.2%
Puglia, Basilicata, Calabria (*South*)	11.4%	12.0%	12.9%	13.3%	14.5%	14.4%
Sicilia	13.5%	13.4%	13.4%	16.4%	17.0%	17.5%
Sardegna	10.4%	13.0%	14.6%	13.8%	14.9%	12.6%

Source: elaborations on Istat data

To test this hypothesis we re-estimate a random effect probit model on a sample of temporary workers *only* including an indicator of the probability of getting a permanent contract between the regressors. We use as a *proxi* of this probability the percentage of temporary contracts by region, sex and year (tables 3.a and 3.b), assuming that the higher this percentage, the lower the subjective probability of getting a stable job. The core of our analysis is that we have relied such a probability on the subjective perception of workers for such a probability. Such assumption does not contrast with our aim to value workers' effort, on the contrary it enhances our hypothesis, according to which we assert that such an effort depends on the *subjective* perception of improving personal working conditions, apart from the objective situation. The workers offer longer working hours because they "hope" that a higher effort may increase the probability of getting a permanent contract in the same firm.

To test, more generally, the influence of overall individual working history on effort we also include in the regression the number of times the worker has been unemployed after 1989.

The results of this second estimate are reported in table 4.

Table 3.b – Percentage of temporary contracts at regional level, Italy - 1996-2001, females

Eurostat macro-areas	Females					
	1996	1997	1998	1999	2000	2001
Valle d'Aosta, Piemonte, Liguria (*North West*)	6.1%	7.3%	7.9%	9.1%	9.8%	9.9%
Lombardia	6.1%	6.7%	7.4%	8.0%	8.9%	8.5%
Trentino A.Adige, Veneto, Friuli V.Giulia (*North East*)	9.6%	9.9%	9.6%	11.5%	11.3%	10.6%
Emilia Romagna	8.9%	9.2%	9.7%	10.7%	11.2%	11.8%
Toscana, Umbria, Marche (*Centre*)	7.9%	8.4%	9.6%	10.7%	11.6%	11.3%
Lazio	6.9%	8.4%	9.1%	10.9%	11.9%	12.0%
Abruzzo, Molise	7.9%	10.8%	11.1%	11.4%	11.7%	12.3%
Campania	10.8%	10.9%	13.2%	14.9%	15.7%	14.7%
Puglia, Basilicata, Calabria (*South*)	17.1%	16.9%	18.9%	19.7%	20.4%	18.7%
Sicilia	13.5%	14.8%	16.9%	18.3%	18.6%	19.8%
Sardegna	12.8%	12.6%	14.1%	18.2%	19.3%	19.1%

Source: elaborations on Istat data

Table 4 - Random effect probit model: temporary workers only

Random-effects GLS regression
Number of obs = 703
Group variable (i): pid
Number of groups = 457

R-sq: within = 0.0596 Obs per group: min = 1
between = 0.3059 avg = 1.5
overall = 0.3114 max = 6

Random effects u_i ~ Gaussian Wald chi2(25)= 224.2
corr(u_i, X)= 0 (assumed) Prob > chi2 = 0.0000

Variables	Coef.	Std. Err.	z	P>|z|
1997	-0.03486	0.049694	-0.7	0.483
1998	-0.05915	0.054196	-1.09	0.275
1999	-0.08449	0.05684	-1.49	0.137
2000	-0.01826	0.062892	-0.29	0.772
2001	0.011227	0.058709	0.19	0.848
Age	0.008143	0.017526	0.46	0.642
Age squared	-0.00012	0.000217	-0.56	0.573
Females	-0.16251	0.051466	-3.16	0.002
Married	-0.04584	0.056465	-0.81	0.417
South	0.066461	0.066694	1	0.319
Bad Health	0.046376	0.089265	0.52	0.603
Secondary Education	-0.00976	0.066997	-0.15	0.884
Tertiary Education	0.057321	0.070794	0.81	0.418
Small and medium firm	0.011166	0.042593	0.26	0.793
Specific Experience	-0.00016	0.003036	-0.05	0.959
Manufacturing Industries	0.145284	0.059566	2.44	0.015
Elementary occupations	-0.09391	0.042617	-2.2	0.028
Public sector	-0.31107	0.044658	-6.97	0.000
Not overskilled	0.047757	0.03473	1.38	0.169
Not specific training	0.030436	0.044462	0.68	0.494
Satisfied about working hours	-0.06851	0.035432	-1.93	0.053
Hours spent for children care	0.000577	0.001149	0.5	0.616
log(hourly wage)	-0.48646	0.115569	-4.21	0.000
% of temporary contracts	-0.021189	0.004571	-4.79	0.000
number of periods of unemployment	0.00046	0.003124	0.15	0.883
Constant	1.252509	0.368519	3.4	0.001

sigma_u .2830624
sigma_e .31813554
rho .44185912 (fraction of variance due to u_i)

When we include temporary workers only in the regression, the probability of overtime appears to be lower for female workers, for workers in elementary occupations and in the Public sector, and higher in the manufacturing sector. This probability appear to be negatively correlated with hourly wages. According to our hypothesis the percentage of temporary contracts at the local level has a significantly negative impact on the probability of overtime, while the number of periods of unemployment does not seem to affect workers' effort. It is worth noting that, when controlling for the incidence of temporary work at the local level, temporary southern workers do not exhibit a different probability of overwork compared to northern ones.

Table 5 - Random effect probit model: the influence of the incidence of temporary contracts at local level

Random-effects GLS regression
Number of obs = 7679
Group variable (i): pid
Number of groups = 2855

R-sq: within = 0.0256 Obs per group: min = 1
between = 0.4015 avg = 2.7
overall = 0.3666 max = 6

Random effects u_i ~ Gaussian Wald chi2(25) = 2089.4
corr(u_i, X) = 0 (assumed) Prob > chi2 = 0.0000

Variables	Coef.	Std. Err.	z	P>|z|
1997	0.007796	0.013871	0.56	0.574
1998	-0.03334	0.014328	-2.33	0.020
1999	-0.01253	0.016319	-0.77	0.443
2000	-0.00615	0.016727	-0.37	0.713
2001	0.001998	0.016341	0.12	0.903
Age	-0.01257	0.006358	-1.98	0.048
Age squared	0.000129	0.000076	1.7	0.088
Females	-0.17594	0.01687	-10.43	0.000
Married	0.01247	0.020752	0.6	0.548
South	-0.08415	0.0207	-4.07	0.000
Bad Health	-0.01807	0.027817	-0.65	0.516
Secondary Education	-0.05676	0.020384	-2.78	0.005
Tertiary Education	-0.00323	0.022838	-0.14	0.887
Small and medium firm	-0.00372	0.011552	-0.32	0.747
Specific Experience	0.000898	0.001042	0.86	0.389
Manufacturing Industries	0.14587	0.014785	9.87	0.000
Elementary occupations	-0.06278	0.018281	-3.43	0.001
Public sector	-0.28831	0.014349	-20.09	0.000
Not overskilled	0.017133	0.010044	1.71	0.088
Not specific training	-0.01715	0.010672	-1.61	0.108
Satisfied about working hours	-0.07068	0.009921	-7.12	0.000
Hours spent for children care	-7.9E-05	0.000309	-0.26	0.798
log(hourly wage)	-0.60066	0.043337	-13.86	0.000
Temporary work	0.004084	0.017716	0.23	0.818
% of temporary contracts	-0.219455	0.004569	-4.80	0.000
Constant	1.786634	0.137788	12.97	0.000

sigma_u .28224464
sigma_e .28164951
rho .50105541 (fraction of variance due to u_i)

To widen our results, we re-estimated the model using the overall sample (with both permanent and temporary workers), including among the regressors the incidence of temporary contracts at local level. In this case (see table 5) the influence of the type of contract (temporary or permanent) on the probability of overtime is no longer significant. This could mean that, when controlling for the probability of transition from a temporary job to a permanent one, there would no longer be any significant difference between the effort behaviour of temporary workers and permanent ones.

4. Some empirical evidence on labour productivity from the manager/entrepreneur point of view

The Eurostat data (see tables 6 and 7 and graphs 1 and 2) suggest that in 15 countries in the European Union we can find four types of experience:

1. the Spanish and the French one;
2. the UK one;
3. the German one;
4. the Italian one.

The Spanish experience has the maximum incidence of the temporary work over the last ten years, with evident economic and social consequences for the involved workers. However it is a country that has recently tried to overcome job precariousness by law, introducing the rule that continuous temporary work for 24 months in the same firm must be converted to a permanent contract.

The French experience is similar to the Spanish one in terms of the incidence of temporary employment and the attitude of the labour policy, because recently it has considered the economic and social consequences of temporary work and cancelled new forms of such work under the pressure of trade unions and workers' mobilization.

Both experiences show a decreasing incidence of temporary employment compared to total employment and erratic productivity per hour worked over the last few years.

The UK and the German experiences show better productivity performances in the years in which the incidence of temporary employment was much less than average in the EU.

The British experience shows much more voluntary part time work than the temporary work (with less negative consequences for the involved workers).

The German experience shows temporary work (mainly within the apprenticeship system) as a step towards less precarious forms of employment, with positive consequences for the involved workers.

The Italian experience shows a relatively high and growing incidence of temporary employment, with prevalent negative consequences for the involved workers, and very negative performance of productivity per hour worked over the last ten years.

Considering the information from the other 4 experiences and from the Danish and the Dutch ones, we can hypothesize that active labour policies, contributing to a reduction of the incidence of temporary employment, can positively affect the working and living conditions of Italian employees and the productivity performances of the Italian economic system.

Table 6 – Productivity for hour worked in some European Countries from 1995 to 2003 (annual percentage growth)

Countries	1995	1996	1997	1998	1999	2000	2001	2002	2003
European Union 15	2.0	1.2	1.7	1.5	1.6	2.5	1.0	0.6	0.8
Denmark	4,4	1,9	1,3	1	-1,3	4,9	0,5	2,5	
Germany	2,5	2,3	2	1,3	1,5	2,2	1,4	1,3	0,8
Spain	0,9	1,4	0,9	-0,7	1,7	0,8	0,4	1,1	
France	2,3	0,4	1,9	2,6	1,6	4,4	1,8	0,3	2,8
Ireland	5,7	4,2	7,7	4,2	6,8	5,3	3,9	6,1	
Italy	3	0,3	1,5	0,9	0,9	1,3	0,5	-1,4	
Netherlands	2,3	0,1	1,1	2,9	2,7	-0,5	2,7	-1,6	
Austria	1,6	2,6	-1,9	9,1	0,6				
Portugal	3	3,1	4,6	2,8	1,1	3,7			
Finalnd	1,5	2	3,3	3,1	0,7	3,2	0,4	1,9	0,9
Sweden	2,1	1,6	3,5	2,2	1,8	3,3	0,4	3,3	3
United Kingdom	1,8	1,2	1,5	2,2	2	3,1	1,2	1,2	

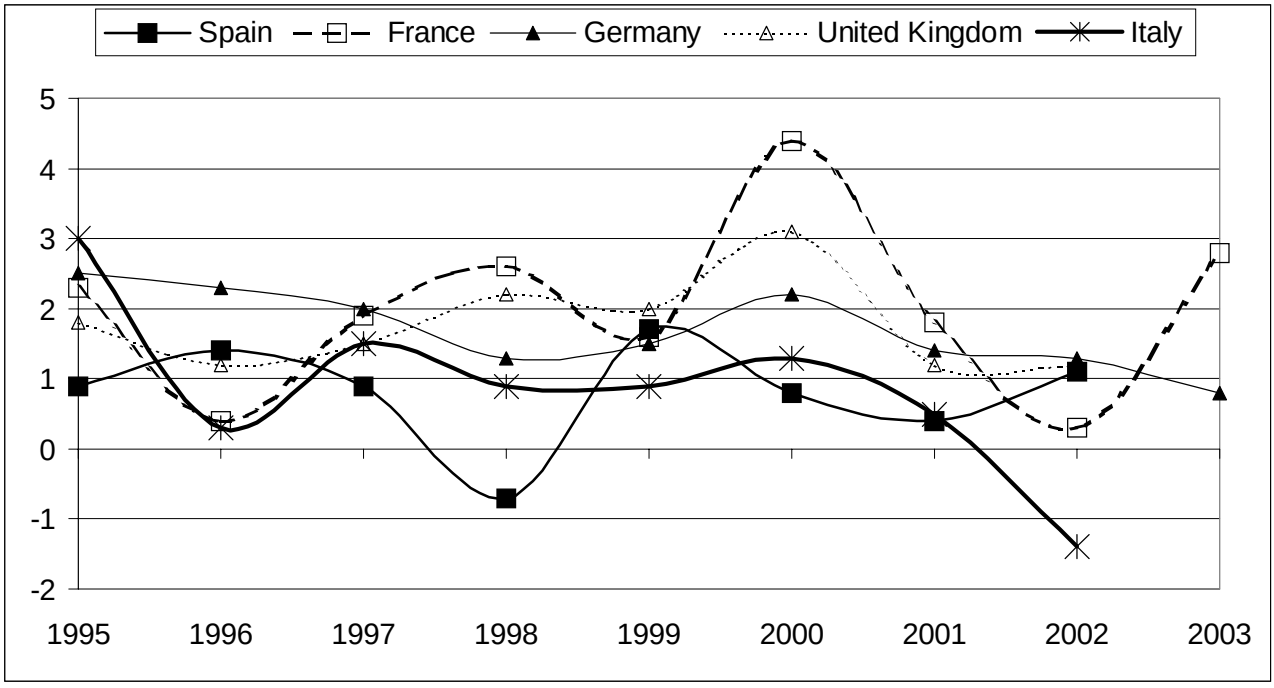
Source: European Commission, Employment in Europe 2004, pp. 229 and ss., Office of Official Publication, Luxembourg, August 2004.

Table 7 - Incidence of fixed term employment on total employment from 1995 to 2003 in some European Countries (percentages)

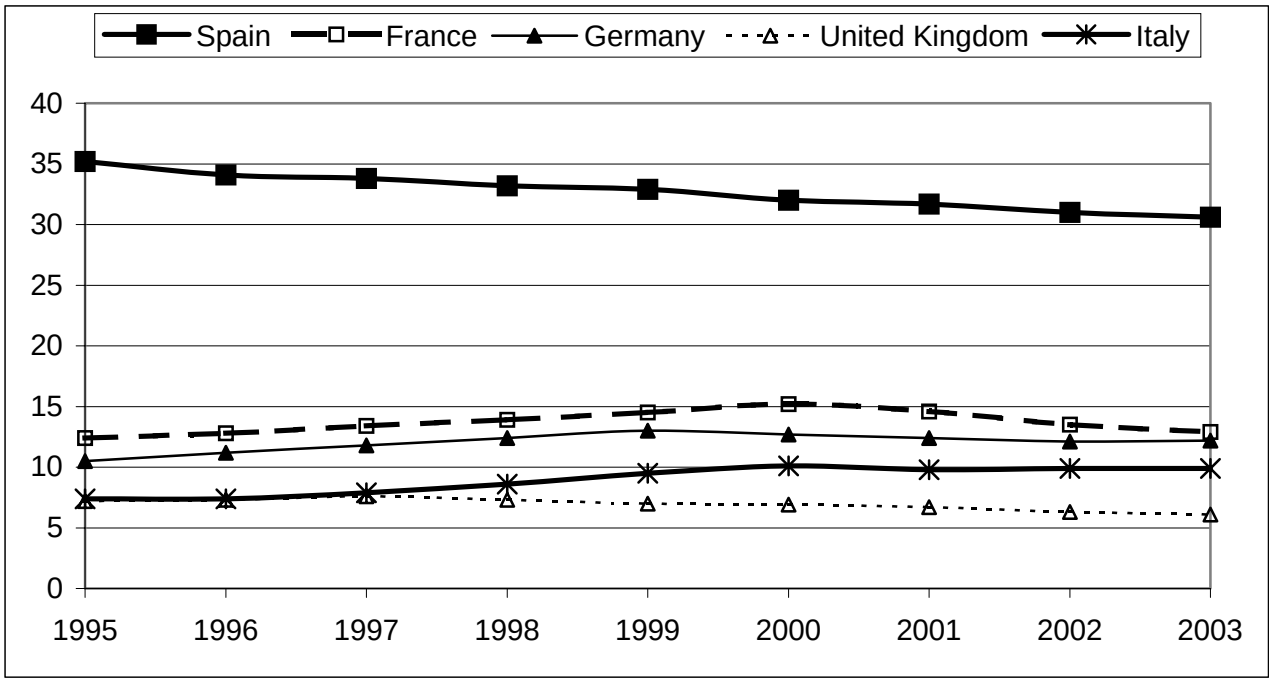
Countries	1995	1996	1997	1998	1999	2000	2001	2002	2003
European Union 15	12.0	12.3	12.7	13.1	13.4	13.6	13.3	13.0	12.8
Denmark	11,6	10,9	10,6	9,9	9,6	9,7	9,2	9,1	9,3
Germany	10,5	11,2	11,8	12,4	13	12,7	12,4	12,1	12,2
Spain	35,2	34,1	33,8	33,2	32,9	32	31,7	31	30,6
France	12,4	12,8	13,4	13,9	14,5	15,2	14,6	13,5	12,9
Ireland	10	9,3	9	7,2	5,2	5,7	5,2	5,3	5,1
Italy	7,4	7,4	7,9	8,6	9,5	10,1	9,8	9,9	9,9
Netherlands	11,4	12,3	11,8	13	12,3	13,7	14,3	14,4	14,6
Austria	6,8	7,8	7,9	7,8	7,9	8	7,8	7,3	7,1
Portugal	12	13,6	15,4	17,2	18,7	19,9	20,4	21,7	21,1
Finalnd	11,6	11,4	10,9	11,4	12,1	12,3	12,2	12,8	13
Sweden	14,7	14,4	15,1	16,1	16,5	15,8	15,2	15,2	15,1
United Kingdom	7,2	7,3	7,6	7,3	7	6,9	6,7	6,3	6,1

Source: European Commission, DG5, Employment in Europe, 2003-2004, Statistical annexes, Luxembourg, European Community Office for the Publications.

Graph 1 - Productivity per hour worked in five European countries from 1995 to 2003 (annual percentage growth)



Graph 2 - Incidence of fixed term employment on total employment from 1995 to 2003 in five European Countries (percentages)



5. Concluding remarks

The global approach of this paper is based on the assumption that temporary workers are interested in making higher effort than permanent workers *only* if they perceive that this effort may provide a "stepping stone" towards typical labour contracts. We assume that the proportion of temporary contracts in the region where the worker lives can be considered a proxy of this perception. The lower the proportion of temporary workers in the region, the higher the subjective probability perceived by workers of becoming permanent. The higher such a probability, the higher the effort of such workers.

The statistical and econometrical tests presented in the third section, based on Eurostat panel, support the hypothesis that a higher proportion of temporary employees at regional level discourages atypical workers from producing higher effort.

Moreover, the eventual harder effort in terms of working hours, given by temporary workers, does not mean higher labour productivity. In fact, the Eurostat data discussed in the fourth section show an apparently negative relationship between the incidence of temporary work out to the total employment and the trend of labour productivity per man/hour.

Considering the information collected and discussed in the paper, we can argue that policies directed to contain/reduce the incidence of temporary contracts out to the total employment can have positive effects on labour productivity, in addition to better working and living conditions for the involved workers and their families.

The Danish and Dutch experiences can provide useful suggestions about which kind of policies can be pursued, mainly the direction of flex-security of employment.

Policy makers should focus more on high skill solutions than on short term contracts, stimulating firms to consider this approach. Indeed, we would launch the approach "skills and innovation[3]", in a production system that is still anchored to a low skill method. Many firms today have triggered off a vicious circle based on low value added and low skills, leading towards a bad job trap (Snower, 1996).

In Scandinavian countries, industrial and employment policies are integrated (Taylor, 2003), providing high performance workplaces. It is difficult to adapt such policies in a country like Italy, which is very different from the Scandinavian socio-economic system. However it is important to have an integrated package of policies aiming to innovate (new technologies, new organizational methods, new products), create a high skill workplace (opportunity of lifelong learning for all: education, training and informal learning for all at any age) and create a high quality of working conditions and working life. We conclude that this recipe may improve the 21st century globalized labour market.

[3] A process of integration between skills and innovation production. An organization cannot produce innovation without producing skills and vice-versa.

Appendix - Data and variables description

The data used for the estimations presented in the third section are obtained from the 3rd to 8th waves (1996-2001) of the European Community Household Panel (Eurostat) for the case of Italy. For the purpose of this analysis the individuals included in the sample have been selected so as to include employed people, with a permanent contract, with a temporary contract or without any contract (29,486 observations).

The variables included in the estimates have been constructed as explained below.

Yearly dummy variable: reference 1996.

Age (and age squared): age (and age squared) of the individual at the time of the survey, question PD003.

Female: dummy variable built on the basis of question PD004 (Female=1; male=0).

Married: dummy variable built on the basis of question PD005 (Married=1; otherwise=0).

South: dummy variable built on the basis of question HG015, grouping the Eurostat regions as follows:

Table A1 –Eurostat Regions and geographical dummy

Eurostat Regions	Eurostat code	Geographical dummy
North West	IT1	Centre-North = 0
Lombardia	IT2	
North East	IT3	
Emilia Romagna	IT4	
Centre	IT5	
Lazio	IT6	
Abruzzo-Molise	IT7	South = 1
Campania	IT8	
South	IT9	
Sicilia	IT10	
Sardegna	IT11	

Bad health: *dummy variable* built on the basis of question PH001 (*How is your health in general?*). The variable has value 1 for *bad*, *very bad* and value 0 for: *very good*, *good*, *fair*.

Secondary education – Tertiary education: dummies variables built on the basis of question PT022 (*Highest level of general or higher education completed*) . Ref. category: Compulsory education or lower.

Small and medium firms: question PE008 (*Number of regular paid employees in the local unit in current job*). We considered:

1. small firms, from 0 to 49 employees;
2. medium firms, from 50 to 499 employees;
3. big firms, 500 or more employees (Ref. category).

Specific Experience: variable built on the basis of the question PE011 as follows:

Specific experience = year of the survey - starting year of current job

Manufacturing industries: question PE007b (*Main activity of the local unit of the business or organisation in current job*), Manufacture = 1; other = 0.

Elementary occupation: question PE006c (*Occupation in current job, i.e. principal activity performed*), Elementary occupations = 1; other = 0 (legislators, senior officials and managers, professionals, technicians and associate professionals, clerks, service workers and shop and market sales workers, skilled agricultural and fishery workers, craft and related trades workers, plant and machine operators and assemblers, armed forces).

Public sector: question PE009 (*Current job in private or public sector*), public sector, including para-statal=1, private sector, including non-profit private organisations=0.

Not overskilled: question PE016 (*Do you feel that you have skills or qualifications to do a more demanding job than the one you have now?*); no = 1, yes =0.

Not specific training: question PE021 (*Have you had formal training or education that has given you skills needed for your present type of work?*); no = 1, yes =0.

Satisfied about working hours: question PE034 (*How satisfied are you with your present job in terms of number of working hours?*), 1 = not satisfied..... 6 = fully satisfied; 1,2,3 = 0; 4,5,6 = 1.

Hours spent for children care: question PR007A (*Number of hours – per week – spent looking after children*), 1 to 96.

log(hourly wage): variable built on the basis of question PI211M (*Current wage and salary earnings, net-monthly*) and of question PE005 (*Total number of hours working per week*). This information has also been utilised for the definition of "overtime" work.
% of temporary contracts: percentage of temporary contracts out to the total dependent employment by year, sex and Eurostat region; CNEL elaboration on ISTAT data.
Number of periods of unemployment: variable built on the basis of question PU002A (*Person has been unemployed after 1989*), yes or no; and question PU003A (*Number of times the person has been unemployed after 1989*), 1 to 96.
We also used ECHP information about:
Full time/part time contract: question PE005C;
Type of employment contract: question PE024 (*What type of employment contract do you have in your main job*); permanent employment, fixed term or short term contract, casual work with no contract, some other working arrangement.

References

Arulampalan W., Booth A.L., 1998, "Training and labour market flexibility: is there a trade off?", *The British Journal of Industrial Relations*, vol. 36.

Bentolila S., Bertola G., 1990, "Firing costs and labour demand: how bad is Euroscleresis", *Review of Economic studies*, vol. 57.

Bentolila S., Saint Paul G., 1994, "A model of labour demand with linear adjustment costs, *Labour Economics*, vol. I.

Bertola G., Ichino A., 1995, "In mezzo al guado. Dalla rigidità alla flessibilità nel problema occupazionale italiano", in Galimberti F., and o., eds., *Le nuove frontiere della politica economica*, Il Sole 24 Ore – Bear Sterns.

Booth A.L., Doledo J.J., Frank J., 2002, "Introduction: Symposium on temporary work", *The Economic Journal*, vol. No. 480, June.

Booth A.L., Francescani M., Frank J., 2002b, "Temporary jobs: stepping stones or dead ends?", *Economic Journal* vol. No. 480, June.

Bratti M., Staffolani S., 2004, "Effort-based career Opportunities", in *Quaderni di Ricerca*, n. 203, University of Marche.

Engellandt A., Riphahn R.T., 2005, "Temporary contracts and employee effort", in *Labour economics*, n. 12, pp. 281-299.

European Commission, *Employment in Europe 2004*, Office of Official Publication, Luxembourg, August, p. 229 and f.

Farber H.S., 1999, "Alternative and part-time employment arrangements as a response to job loss", *Journal of labour Economics*, vol. 17.

Freeman R., 2006, *Your job: love it or hate it. The economics of job satisfaction*, Lecture at London School of Economics, May.

Frey L., Croce G., eds., 2002, "Flessibilità, precarietà e politiche del lavoro", *Quaderni di Economia del Lavoro*, n. 73, Franco Angeli, Milan.

Frey L., Pappadà G., 2003, "Qualità del lavoro e occupazione precaria", in *Scritti in onore di Francesco Vito*, Vita e Pensiero, Università Cattolica del Sacro Cuore, Milan.

FreyL. e Pappadà G., eds., 2004, "Le politiche di contenimento/superamento dell'occupazione precaria, con particolare riguardo alla Legge Biagi", *Quaderni di Economia del Lavoro*, n. 78, Angeli, Milano.

Frey L., Pappadà G., 2005, *Strategie di apprendimento ed equilibrio dinamico tra struttura professionale della domanda e dell'offerta di lavoro*, paper presented at AIEL International Conference, University of Rome "La Sapienza", September.

Levitan S., Werneke A., 1984, *Productivity, problems, prospects and policies*, John Hopkins University Press, Baltimore, pp. 3-4

Rodgers G, Rodgers J., 1989, eds., *Precarious jobs in labour market regulation*, ILO, Geneva.

Snower D.J., 1996, "The low skill, bad job trap", in Snower, eds., *Acquiring skills*, Cambridge, Cambridge University Press.

Somavia J., 2000, *Perspectives on decent work*, International Labour Office, Geneva.

Standing G., 1999, *Global labour flexibility*, Macmillan, London.

Taylor R., 2003, "Skills and innovation in modern workplace", *Future of Work*, Economic and Social Research Council, London.

Weiss A., 1980, "Job queues and layoffs in labor markets with flexible wages" in *Journal of Political Economy*, Vol. 88 nr. 3.

Zanetti G., ed., 2000, "Produttività e occupazione: risultati di ricerche empiriche", *Quaderni di Economia del Lavoro*, n. 69, Franco Angeli, Milan.