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The Gender Pay Gap in Italy: Some Evidence on the Role of Decentralized Collective Bargaining *

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ABSTRACT

This paper aims to contribute to the existing literature on Gender Pay Gap (GPG), by using data collected by ISTAT with the Structural Earnings Survey (SES) for 2002, 2006 and 2010. The analysis focuses on the source of this wage gap in 2010, pointing out the role of bonuses related to performance in shaping gender gap in earnings. The analysis is carried out in three steps. After having assessed the existence of GPG in the Italian labour market with a descriptive analysis, the contribution of individual characteristics and institutional features (including decentralized collective bargaining at enterprise level) are pointed out over time. The analysis proceeds by isolating the subset of employees receiving performance pay (PP) in order to assess the role of PP in the gender gap in earnings. The analysis ends by pointing out the contribution of individual, job and firm characteristics to the probability of receiving PP. Can decentralized collective bargaining be considered as an element to promote an equal distribution of wages? Is PP the component of wage that gives the highest return on human capital?

Keywords: Gender Pay Gap, Bargaining, Bonuses, Regression, Probit.

La brecha salarial de género en Italia: Algunas evidencias sobre el papel de la negociación colectiva descentralizada

RESUMEN

Este trabajo trata de contribuir a la literatura existente sobre la brecha salarial de género mediante el uso de los datos recogidos por el ISTAT con la Encuesta de Ingresos Estructural (SES) por los años 2002, 2006 y 2010. En la primera parte, se evalúa la existencia de GPG en el mercado de trabajo italiano con un análisis descriptivo a lo largo de los años 2002-201 subrayando el papel desarrollado tanto por las características individuales como por las características institucionales del mercado laboral y de l economía (incluyendo la negociación colectiva descentralizada a nivel de empresa). En la segunda el análisis evaluando el papel del PPD en la diferencia salarial de género. El trabajo se concluye destacando la influencia en la probabilidad de recibir PPD relacionada con las características individuales, profesionales y de las empresas. ¿La negociación colectiva descentralizada, puede ser considerada un elemento para promover una distribución equitativa de los salarios?. ¿Es el PPD el componente del salario que le da más alto rendimiento al capital humano?.

Palabras Clave: Brecha salarial, negociación, pagos por desempeño, regresión, probit.

Clasificación JEL: J31, J52, J71

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1. INTRODUCTION

This paper aims to contribute to the existing literature on Gender Pay Gap (GPG), by assessing the GPG and testing its relationship with individual, job and firm characteristics in Italy during the period 2002-2010. The analysis also focuses on the source of wage gap, highlighting the effect onto the wage gap due to the variable part of salary related to performance bonuses.

The starting point is that the individual characteristics do not allow for an explanation of the whole GPG, as Human Capital approaches assert. In fact, the labour market is strongly characterized by a remarkable segregation of women, that is the first responsible for the gap in wages. As traditional decompositions of wages (i.e. the Oxaaca-Blinder and Juhn-Murphy-Pierce decompositions) show, GPG is not explained by differences in characteristics between men and women but it mostly arises from different returns to these characteristics, evidently related to gender discrimination. Women suffer from vertical and horizontal segregations as most of them are employed in low-paid sectors with short-term and part-time contracts and, at the same time, they are penalized by a glass ceiling that prevents them from reaching top positions. In this context, institutional factors, such as the nature of industrial relations, welfare state and wage formation system, can make a real difference in addressing the GPG.

Collective bargaining in Italy is essentially a voluntary system although there are some basic guarantees on trade union rights and pay in the national Constitution. The present bargaining system was introduced by the Agreement of 23 July 1993, which radically reformed the system of collective bargaining[1]. It restructured the links between industry and company level bargaining, and drew up new bargaining timetables. The 1993 agreement also laid the basis for a new system of workplace representation and finally ended the system of pay indexation - linking pay to prices - named the “scala mobile”. It divides the collective bargaining system into two different levels:

- a national level (projected to recuperate inflation);
- a decentralized level (to distribute earnings from productivity or profitability).

National level negotiations are intended to guarantee that pay keeps pace with prices and increases along with expected inflation; in addition, this negotiation level deals with a range of non-pay issues (such as working time, information rights and work organization). National level negotiation, in spite of being voluntary, covers over 95% of all workers, at average.

[1] For more details please visit the following link: http://www.eurofound.europa.eu/efemiredictionary/agreement-of-23-july-1993.

Decentralized level negotiations occurred at company level as well as on a district or regional basis, although this has occurred to a limited extent (particularly in construction, tourism, crafts and agriculture sectors). This level should provide a mechanism for the employees to take account of particular company level developments, such as improved productivity on the one hand or the risk of job losses on the other. In addition, company level negotiations also deal with changes introduced by the company, such as new working methods. Decentralized bargaining, however, covers less than half of all workers.

The largest proportion of the variable pay received by Italian workers pertains to this second level of bargaining.

In 2009 some important agreements were introduced in the bargaining system, recognizing a new centrality to the decentralized collective agreement. While these were agreed by the CISL and UIL confederations, they were not endorsed by CGIL, the largest of the three confederations[2].

The most important changes introduced, compared with the system established by the 1993 Agreement, are:

- industry agreements run for three years, covering both pay and conditions issues, rather than the two years for pay and four years for conditions, as set out in the 1993 framework;
- pay increase in industry agreements are no longer linked to the forecast inflation rate but to the forecast European consumer price index for Italy - excluding energy consumption. Any differences between the forecast and actual inflation should be made up for within the three-year period of the agreement. Productivity improvements are now only to be taken account of in company level bargaining, which the government is encouraging through tax incentives. Where there is no company-level bargaining, employees should receive extra payments through a wage guarantee element ("elemento di garanzia retributive, EGR"), to be agreed jointly by the two sides, and paid at the end of the three year period.
- the negotiating timetable has been changed: the unions must submit their claim six months before the end of the agreement, and the employers must respond within 20 days; strikes are prohibited during the last six months of an agreement and in the month after it runs out.

Considering the increasing importance that the normative has given to the decentralized collective bargaining in Italy starting from 1993, it is of particular interest to assess its role in shaping wage differences over time.

The main hypothesis is that decentralized collective bargaining is adopted by

[2] CISL stands for the I*talian Confederation of Trade Unions*, UIL for *the Italian Labour Union* and CGIL for *the I*talian General Confederation of Labour

enterprises that need to reorganize the productivity of their factors, for instance under a bigger competitive pressure (especially for the need of making labour factor more flexible). As a consequence of improved flexibility and according to neoclassic theory, these enterprises will rewards the labour factor according with its productivity (we are implicit assuming levels of education and working experience as proxy of productivity). Assuming this hypothesis, decentralized collective bargaining should return on human capital equally and then contribute to the reduction of the GPG. The final aim of this work is to test what GPG theories fits better to the Italian case, pointing out the role of Performance Pay (PP) in returning human capital in a more equal way.

The analysis is carried out in three steps. After having assessed GPG in the Italian labour market over time with an explanatory analysis, the overall GPG is estimated, as well as the contribution of individual, job and firm characteristics. The analysis proceeds by isolating the subset of employees receiving bonuses related to performance in order to assess the role of PP in gender gap in earnings. It ends by modeling the probability of perceiving PP.

Can decentralized collective bargaining be considered as an element to promote an equal distribution of wages? Is the PP the component of salary that gives the highest return on human capital? These are the questions to which this work tries to give an answer.

2. LITERATURE ON GENDER PAY GAP: THE HUMAN CAPITAL AND THE INSTITUTIONAL APPROACHES

Economic literature on GPG is ample and identifies a number of personal, institutional and structural influences that determine the gap between male and female earnings. Female participation to the labour market, occupational segregation, education, structure of wages, etc. are often identified as key drivers of GPG, as well as some unobservable variables that derive from bare discrimination.

The large debate can be summarized in two main approaches. Early approaches on the GPG used a Human Capital model. They argue that the earnings gap between men and women arises from the different investments (monetary, educational, daily engagement at work place) that differentiate the sexes. Following these approaches, the propensity of individuals to invest in formal and on-the job education depends on the expected return they will receive as a consequence of their investment. As women working life is characterized by a high number of breaks (women work fewer weeks per year and hours per week than men), women face many barriers to their advancement at higher levels of the job hierarchy, and the return of education tends to have a lower profit margin (Becker, 1971). Anticipating shorter and more discontinuous working lives, women have less incentive to invest in their own human capital,

and their resulting smaller human capital investments will lower their earnings in relation to those of men: the difference in earnings is the result of the different investments (Blau and Kahn, 2008).

The difference in earnings is increased on the side of employers who, predicting this tendency, foster the effects on the labour market. In fact, anticipating a lower return of the training on the job for women, they prefer to employ male labour force (Blau and Kahn, 2000). As a consequence, a substantial discrimination in the labour market is produced by both labour demand and supply. This implies that women are often overrepresented in low-qualified and part-time jobs, that tend to be relatively low-paying compared to predominantly male professional occupations and with less career opportunities (De Santis *et al.*, 2014a, 2014b).

Following on from the Human Capital approach, the gender pay gap is analyzed through some econometric models, in which wage is explained using a set of individual observable characteristics (e.g. education, age, qualification, tenure) as regressors and a dummy variable for gender. As a further development of this approach, the GPG has been statistically decomposed into two components: one due to gender differences in measured characteristics, and the other unobservable factors, such as discrimination. Such empirical studies provide evidence that most of the difference between male and female wages derive from unobservable factors, often related to labor market discrimination (Gnesi *et al.*, 2014).

Huge differences in both career opportunities and salaries among men and women have led to an occupational segregation of the sexes, as women are concentrated in lower paid occupation than men. This segregation can be either horizontal or vertical. The first phenomenon refers to the fact that females are employed in different and predominantly lower-paid occupations than males. In fact, female occupations are often referred to as the "five c's": cleaning, catering, caring, cashiering and clerical work. For these female occupations, wages tend to be lower as a result of over-supply of female labour force, being characterized by part-time jobs and labour market discrimination (Blau and Kahn, 2000).

Vertical segregation refers to the fact that males occupy higher-paid and skilled positions within the same occupation. This situation is closely related to the *glass ceiling*, an invisible barrier made of social conventions and norms, that makes advancement more demanding and difficult for women. As a consequence, there is a lack of women in senior and executive positions across all sectors of the workforce. As a result, the gender pay gap increases constantly and culminates for women in the middle of their career, prevented in advancing by a sticky floor.

Many other approaches follow the Institutional model that focuses on the differences between men and women that arise from institutional factors: individual characteristics play a very small role, because the GPG is mostly influenced by social norms, structural and institutional features of the labour market. Considering that sectors in which men and women are employed are characterized by a very different wage structure, changes of the wage structure impact women differently than men, producing better results in GPG than gender specific characteristics (Plantenga and Remery, 2006). Also the increase of the minimum wage can have a positive effect on GPG, as women are more represented in low-paid occupations (Blau and Kahn, 2000).

Following the institutional approaches, the nature of industrial relations, welfare state, wage formation system but also social norms, gender stereotyping and valuation of women's work, can play an important role in reinforcing and maintaining gender disparities in wages. In this sense, GPG between countries is due to structural differences in labour markets such as union density and patterns of wage bargaining rather than differences in the characteristics of females in the workplace.

One of the key elements that determine the wage structure is the nature of industrial relations that can have a significant impact on GPG. Some research find a positive correlation between trade union membership and lower GPG for unionized employees than non-unionized employees (ITUC, 2008); unionized economies and firms tend to have a lower overall wage dispersion that leads to a smaller GPG (Blau and Kahn, 2000). With specific reference to pay setting institutions, there is still not an agreement on the effect of different models of bargaining (centralized or decentralized). Most of the literature shows that "decentralized and individualized system should in this respect be assessed as a rather worrying development. As wages are increasingly set at local or company level, inter-firm and inter-industry wage differences may increase, thereby potentially increasing the gender pay gap" (Plantenga and Remery, 2006). Despite that, some empirical studies evidence that in recent years the decentralization of wage determination systems in Australia and Great Britain has produced a positive effect on GPG (Daly *et al.*, 2006).

Also the contribution of performance-based pay system to the GPG is still controversial. Performance bonuses seem to be related to individual characteristics, such us productivity and merit, and thus the return of individual characteristics tend to be greater for the receivers of bonuses than for those who do not (de la Rica *et al.*, 2010). In this way, PP increases the return of individual characteristics, mitigating the effect of wage structure that is more likely to return job and firm characteristics (Zizza, 2013). There are two opposite approaches on the contribution of PP to the GPG. Accordingly to one approach, the PP contributes to the decrease of GPG by returning equally skilled females

and males as the PP is related to productivity and merit more than other wage components. A second approach sees the bonuses received by females lower than those of males due to the female commitment to work being mostly reduced by family care-giving (Plantenga and Remery, 2006). Also the structure of female occupation decreases their possibility to receive any additional wages being mostly employed in small enterprises belonging to less competitive sectors (Ricci, 2010). According to the second approach, PP can contribute to increase wage differentials.

Recent studies have shown that in some countries, such as Spain (de la Rica *et al.*, 2010) and United States (Munoz-Bullon, 2010; Lemieux and Parent, 2009), most of the overall GPG derives from the gap in the variable part of wage (such as annual bonuses and allowances not paid at each pay period). The PP increases wage inequality as women are less likely to receive additional remuneration due to a lower job mobility and a presence in industries and firms in which a clear glass ceiling effect operates (de la Rica *et al.*, 2010).

A recent research shows that for Italy results differ. Selecting the sample of employers receiving bonuses linked to productivity, in 2002 the GPG amounts to 13% compared to the 18% among those not receiving them (Zizza, 2013).

Although there is an open debate on the nature and the sources of GPG, it is now considered as the most important indicator of equal pay in the labour market. In fact, the GPG belongs to the set of the European sustainable development indicators, which are used for assessing the progress made towards the renewed Lisbon Strategy, the European Employment Strategy (EES) objectives and with regard to the EU Sustainable Development Strategy. The gender pay gap is also a key indicator in the framework of the Strategy for equality between women and men of the European Commission.

The search of the most relevant drivers of wage differential is still an open question and the impact of bargaining models is a very complex subject, crossing social, economic and institutional aspects of economies and societies.

3. DATA SOURCES AND METHODOLOGY

The analysis is carried out by using data collected by ISTAT with the Structural Earnings Survey (SES) for 2002, 2006 and 2010. SES is a 4-year survey providing detailed and comparable information on both individual characteristics of employees (such as gender, age, occupation, length of service, highest educational level attained, etc.) and features of enterprises (dimension, sector of activity, localization) employing more than 9 persons in all sectors of economic activity from B to S (O excluded - NACE Rev. 2 classification).

SES consists of a two stage survey: sample survey of enterprises employing from 9 to 250 employees and a census on the ones with more than 250 employees

for the private sector. As regards to the public sector (excluding sections O and P), a census has been implemented.

SES offers a unique opportunity to study relationships between the level of remuneration and characteristics of employees and employers. The data are particularly attractive as they contain detailed information about some variables that are therefore potential candidates to explain the GPG (i.e. bargaining regime and single subject adopted). Moreover, in the form filled by employees, detailed information about wage compensation and its fixed and variable components are provided. In this way, it is possible to recognize ordinary (base wage and other components due to incentives for retirement and severance pay) and non-ordinary components (fixed and variable non-ordinary payments) in annual gross earnings. With reference to non-ordinary component, SES distinguishes between fixed annual ones, which are established at collective bargaining level and are known in advance being related to firms profits, and variable ones, which are not predetermined as they depends on incentives, returns and extraordinary profits. The latter has been identified as PP component, considered as being attached to individual performance.

Using SES data, we are able to make a trend analysis of the GPG in Italy, pointing out the role of decentralized collective bargaining in shaping wage differences and fostering the additional pay of those in highly qualified positions. Moreover, we can identify employees receiving PP and not receiving PP, distinguishing by individual, jobs and firm characteristics.

In the period of our analysis, the sample of SES was composed of 9.771, 6.015 and 8.297 enterprises and 87.753, 137.219 and 228.688 employees for 2002, 2006 and 2010, respectively. The analysis was carried out by using variables referring to both employers and employees regarding individual, job and firm characteristics. The presence of decentralized collective bargaining has been assessed using data referred to enterprise as the specific question has been included in the survey since 2006. Decentralized collective bargaining is here considered according to its normative definition: firm, corporate, territorial and other forms of collective bargaining. Only data refer to private sector has been considered as the public sector was excluded in the SES of 2002.

In the descriptive analysis, GPG has been estimated in the unadjusted definition used by Eurostat. According to this official definition, the unadjusted GPG represents the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. The indicator has been defined as unadjusted (e.g. not adjusted according to individual characteristics that may explain part of the earnings difference) because it should give an overall picture of gender inequalities in terms of pay.

Wage regressions are estimated using data from SES for 2002, 2006 and 2010.

The wage regressions estimated follows this model:

$$\ln W_{ij} = \beta_0 + X_i\beta_{2+}X_j\beta_3 + \varepsilon_{ij}$$

where:

- W is the natural logarithm of yearly hourly wage (in euros) of employee i in firm j;
- X_i and X_j is a vector of individual and job, and firm characteristics, respectively;
- ε_{ij} is the idiosyncratic error.

The individual and job characteristics included in the model refer to:

- Gender: dummy variable that takes the value 0 or 1 (reference is female);
- Age: categorical variable that takes on 6 categories: <20 (reference) , 20-30, 30-40, 40-50,50-60, >60;
- Years of formal education (as a continuous variable);
- Type of employment contract: dummy variable that takes the value 1 (long-term) or 0 (short-term or internship);
- Full-time or part-time job: dummy variable that takes the value 1 (full-time) or 0 (part-time);
- Tenure: length of service in enterprise in years, and its square (as continuous variables);
- Management position: dummy variable that takes the value 0 or 1 (reference is no management position);
- Performance pay: dummy variable that takes the value 0 or 1 (reference is no receiving PP);
- Interaction variable of gender and performance pay.

The firm characteristics included in the model refer to:

- Geographical localization of the enterprise classified according to Nomenclature of Territorial Units for Statistics NUTS level 1: North-east (that includes Trentino Alto Adige, Veneto, Friuli Venezia Giulia and Emilia Romagna), North-west as reference (Piemonte, Valle d'Aosta, Lombardia and Liguria), Centre (Toscana, Umbria, Marche and Lazio) and South and Islands (Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, Sicilia and Sardegna).
- Size of enterprise in terms of employees employed: micro, as reference (up to 20 employees), small (between 21 and 50 employees), small-

medium sized (between 51 and 100 employees), medium sized (between 101 and 250 employees), medium-large (between 251 and 500 employees) and large (more than 500 employees);

- Principal economic activity of the enterprise classified according to the Classification of Economic Activity ATECO 2007[3] at the section level;
- Decentralized collective bargaining: dummy variable that takes the value 0 or 1 (reference is no decentralized collective bargaining).

Some descriptive statistics about variables included in the model are reported in Table 1.

Table 1
Descriptive statistics
(mean, standard deviation, skewness, kurtosis)

YEAR / VARIABLES	2002				2006				2010			
	Mean	Stardand deviation	Skewness	Kurtosis	Mean	Stardand deviation	Skewness	Kurtosis	Mean	Stardand deviation	Skewness	Kurtosis
Gender	0,67	0,47	-0,74	1,54	0,64	0,48	-0,57	1,33	0,63	0,48	-0,52	1,27
Age	38,79	9,79	0,17	2,22	39,95	9,74	0,11	2,28	41,08	10,03	0,02	2,33
Education	10,60	3,33	0,21	2,10	10,97	3,38	0,15	2,14	10,90	3,33	0,05	2,10
Type of contract	0,95	0,22	-4,16	18,31	0,94	0,25	-3,55	13,60	0,91	0,29	-2,84	9,06
Full-time	0,87	0,33	-2,26	6,09	0,89	0,32	-2,42	6,84	0,84	0,36	-1,88	4,52
Tenure	11,07	6,14	0,54	1,68	10,55	5,91	0,71	1,96	10,25	5,73	0,81	2,19
Management position	0,12	0,33	2,28	6,20	0,10	0,29	2,74	8,49	0,12	0,32	2,40	6,77
North west	0,41	0,49	0,38	1,15	0,37	0,48	0,55	1,30	0,35	0,48	0,62	1,38
North east	0,25	0,43	1,18	2,39	0,25	0,43	1,14	2,30	0,26	0,44	1,10	2,22
Centre	0,21	0,41	1,39	2,93	0,19	0,39	1,55	3,42	0,20	0,40	1,52	3,31
South and island	0,13	0,34	2,16	5,66	0,19	0,39	1,62	3,61	0,19	0,39	1,57	3,46
Micro	0,20	0,40	1,51	3,27	0,17	0,37	1,77	4,13	0,17	0,37	1,78	4,18
Small	0,17	0,37	1,78	4,16	0,17	0,38	1,72	3,95	0,17	0,38	1,72	3,96
Small-medium	0,11	0,31	2,56	7,53	0,11	0,32	2,43	6,92	0,11	0,31	2,50	7,25
Medium	0,12	0,33	2,28	6,22	0,14	0,34	2,13	5,55	0,13	0,34	2,18	5,75
Medium large	0,08	0,27	3,08	10,50	0,08	0,27	3,04	10,23	0,86	0,28	2,94	9,69
Large	0,32	0,47	0,76	1,58	0,32	0,47	0,74	1,55	0,33	0,47	0,72	1,51
Decentralized collective bargaining	0,55	0,50	-1,90	1,03	0,47	0,50	0,10	1,01	0,39	0,49	0,43	1,19
Performance pay	0,34	0,47	0,65	1,42	0,34	0,47	0,67	1,44	0,27	0,44	1,05	2,10

Source: Our elaborations on the Structure of Earning Survey, ISTAT, years 2002, 2006 and 2010.

A particular attention has been given to the presence of performance bonuses in influencing wage differentials. The analysis of the PP contribution to the overall gender pay gap has been made by running a wage regression and controlling for employees receiving PP and not receiving PP. Furthermore, a probit model has been estimated to model the probability of granting PP.

[3] ATECO 2007 is Italian l version of the European nomenclature, Nace Rev. 2, published in the Official Journal of 20 December 2006 (Regulation (EC) no 1893/2006 of the European Parliament and of the Council of 20 December 2006).

In the probit model the dependent variable is represented by the dummy variable that identifies the perceivers of performance pay, while the explicative variables are the same described above.

We are aware that measuring the Gender pay gap on the SES data suffers of potential self-selection problems[4] . Eurostat (2009) demonstrated that for Italy, self-selection into paid employment is not an issue, as well as the omission of employees in small firms and agriculture sector; controlling for self-selection into employment is not feasible in the current SES because it lacks the variables that are key in explaining such selection processes. For some European countries (among which Italy) the differences between OLS GPG and OLS GPG with sample correction into employment are not remarkable (less than half a percentage point).

4. HOW LARGE IS THE GENDER PAY GAP IN ITALY: A TREND ANALYSIS

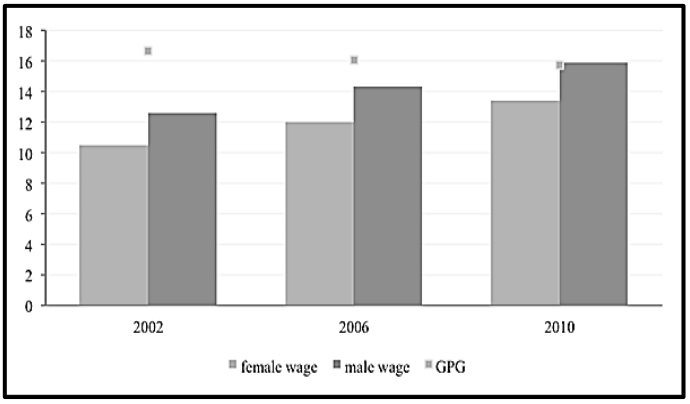
In 2010, the yearly average earning is €14,6 per hour: €15,9 for men against €13,4 for women, that implies a GPG, measured as the percentage difference between male and female hourly earnings as a proportion of male hourly earnings, equal to 15,7%; this means that men earn 16% more than women, ceteris paribus (Figure 1). In the nine years considered, the gender pay gap has decreased from 16,7% in 2002 to 15,7% in 2010. Decreasing has been more consistent from 2002 to 2006, equal to 3,7%, compared to those from 2006 to 2010, equal to 2,2%. The GPG has decreased in this period because both males and females hourly wages increased, but female ones most consistently (+27,6%) than males ones (+26,2%); looking at the first four year, the differential of growth rate has been nearly equal to one percentage point (14,3% for females and 13,5% for males), while in the second four years the differential is the half (respectively, 11,7% and 11,2%).

In order to analyze the impact of decentralized collective bargaining in the structure of wages, the dataset has been decomposed in two subsets: one of those enterprises doing collective bargaining and one of those do not. Results show that GPG is lower in the absence of decentralized collective bargaining (12,2%) than when it is practiced (16,7%). In enterprises doing decentralized collective bargaining, on average, the hourly earnings are higher, both for males and females (in 2010 are € 18,6 and € 15,5, respectively) than in enterprises where it is not applied (€ 13,9 for males and € 12,2 for females); although the wages are higher for both sexes in presence of bargaining, the percentage

[4] Structure of Earnings Survey (SES) database only includes individuals in paid employment and does not include employees in small firms (less than 10 employees), in agriculture and the self-employed.

difference of wages is more considerable. The reduction of GPG for the whole dataset is confirmed (-5,7%), although for those enterprises doing collective bargaining it is more than double than in enterprises not doing (-5,1% versus -2,4%). The decrease of GPG has occurred together with the natural increase of wages: the increase of wages has been particularly evident in case of absence of bargaining, as female wages increase by 32,8% and male wages by 32,4% from 2002 and 2010. The descriptive analysis confirms our main idea that collective bargaining is very important in shaping wages structure and, at the same time, in contributing to wage differentials. Unfortunately, evidence confirms that decentralized collective bargaining still increases the gender pay gap in Italy (Figure 2).

Figure 1
GPG*, females and males hourly yearly wage, 2002-2010



** GPG is calculated as difference between average gross hourly earnings in euros of male paid employees and of female paid employees as a percentage of average gross hourly earnings in euros of male paid employees.*

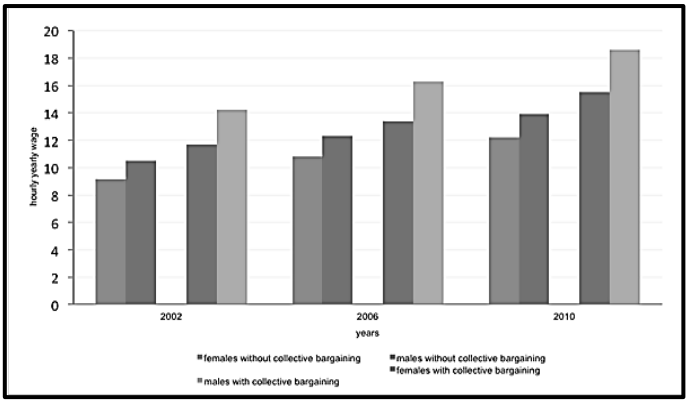
Source: Our elaborations on the Structure of Earning Survey, ISTAT, years 2002-2006-2010.

Looking at bonuses related to performance, in 2010 only 26,7% receive PP: among them, 97% have a long-term contract, almost 40% have more than 15 years of working experience in the enterprise, and 85% occupy management position. Referring to education, it is worth noticing that the half of the receivers PP have an upper secondary education, 35% lower secondary education and only 11% first stage or secondary stage of tertiary education. With reference to gender, one third of employees (32% females and 68% males) granting PP are females: they are, on average, younger and have more years of education than men.

In order to look at the impact of PP in the gender earnings gap, the dataset has been decomposed in another two subsets, corresponding to employees

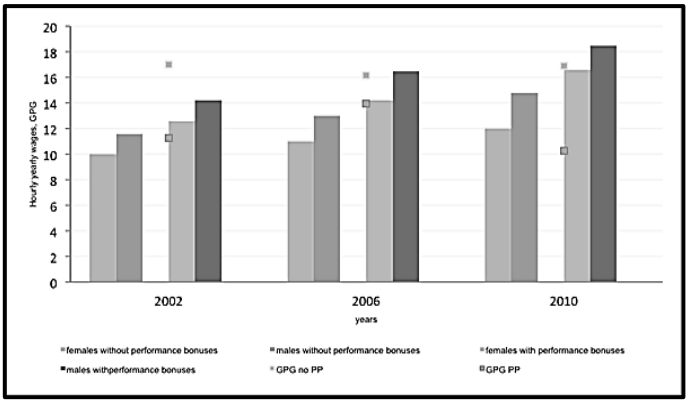
receiving PP and employees not receiving PP.

Figure 2
Females and males hourly yearly wages in euros with and without decentralized collective bargaining; years 2002, 2006, 2010



Source: Our elaborations on the Structure of Earning Survey, ISTAT, years 2002-2006-2010.

Figure 3
GPG*, females and males hourly yearly wages in euros with and without performance pay, 2002-2010



* *GPG is calculated as difference between average gross hourly earnings in euros of male paid employees and of female paid employees as a percentage of average gross hourly earnings in euros of male paid employees.*

Source: Our elaborations on the Structure of Earning Survey, ISTAT, years 2002-2006-2010.

Results show that the remuneration connected to performance has a positive influence on the equal distribution of wages as it increases hourly wages in each of the years considered (Figure 3). In 2010, the hourly earnings is € 16,6 for

females and € 18,5 for males receiving bonuses, against € 12,0 and € 14,8, respectively, for those do not. The interesting result is related to the fact that this increase affects gender indifferently and is even favorable to females: from 2002 to 2010 female earnings increase by 31,7% with respect of males ones by 30,3%. The effect on wage distribution is to promote equality: GPG accounts of 10,3% for employers receiving PP compared to 16,9% for those who do not. Also the impact over time goes in the same direction: from 2002 to 2010, the GPG of receivers of bonuses decreased by nearly 9,0%, while the GPG of those not PP was substantially stable over time.

These findings seem to be in line with the branch of research which considers bonuses the part of salary that is more attached to individual characteristics and, then, able to mitigate the effect of discrimination on wages distribution.

5. WHICH IS THE MORE SUITABLE THEORY TO EXPLAIN GPG IN ITALY?

The empirical evidence emerged in the descriptive analysis encourages our hypothesis to test the most important determinants of GPG in Italy in order to find out the more suitable theory for the Italian case.

A wage regression has been estimated using data for each of the year considered: the dependent variable is the natural logarithm of average hourly earnings, and the independent variables are referred to individual, job and firms characteristics, as described in section 4.

The gender dummy is highly significant in all regressions, showing a positive effect on log-hourly wage of men (Table 2). The wage gap ranges from 13% in 2010 to 14% in 2002 and 2006, that implies that in all the years considered men earn more than women, independently from individual, firm and job characteristics. In line with the descriptive analysis, the gender gap shows a decreasing trend over this period reducing the differences in wages between men and women.

The analysis of the contribution of the explanatory variables is in line with literature. The return of formal education is higher the greater are the years of education; age, considered as a proxy of capabilities and expertise acquired in informal way, has a positive return to hourly wages, in particular in middle ages. Also the years of working experience are highly significant, confirming that the skills gained at work and the training on the job increase remuneration, *ceteris paribus*; but the sign of the coefficient of tenure square shows that the return of experience is positive but at a decreasing rate.

The contributions of job and firm characteristics are significant too. As expected, long-term job has a positive differential in respect to short term ones, both for short-term contracts and internships. Similar results are obtained with

full-time jobs, which have a positive impact to hourly wage mostly due to the fact that long-term and full-time workers can achieve awards and benefits more easily, and can work overtime so are paid more. Hourly wages are higher especially if the worker has management responsibilities, that represents the variable with the highest (positive and significant) coefficient. Larger enterprises offer higher wages compared to smaller one, as well as those enterprises located in the north pay their employees the most.

Table 2
Logarithm hourly wage regressions

VARIABLES	2002	2006	2010
Gender	0.14***	0.14***	0.13***
Age 20-30	0.13***	0.11***	0.01***
Age 30-40	0.20***	0.16***	0.07***
Age 40-50	0.21***	0.16***	0.10***
Age 50-60	0.17***	0.13***	0.07***
Age >60	0.08***	0.11***	0.01***
Education	0.04***	0.03***	0.04***
Type of contract	0.09***	0.10***	0.06***
Full-time employees	0.02***	0.12***	0.11***
Tenure	0.06***	0.07***	0.07***
Tenure square	-0.01***	-0.00***	-0.01***
Management position	0.32***	0.33***	0.37***
North-east	-0.03***	-0.03***	-0.05***
Centre	-0.03***	-0.03***	-0.04***
South and Islands	-0.11***	-0.08***	-0.09***
Small	0.06***	0.04***	0.02***
Small-Medium	0.05***	0.04***	0.05***
Medium	0.09***	0.06***	0.03***
Medium-large	0.11***	0.11***	0.04***
Large	0.13***	0.20***	0.10***
Decentralized collective bargaining	0.11***	0.05***	0.10***
Performance pay	0.08***	0.07***	0.09***
Sex*performance pay	-0.06***	-0.01***	-0.03***
No. Observations	7.590.414	8.438.887	8.503.062
R sq.	0.50	0.31	0.35

*Estimations also control for industry dummies and occupational dummies, coefficients not reported for brevity, ***p<0,01*

Source: Our elaboration on the Structure of Earning Survey, ISTAT, years 2002,2006,2010.

Decentralized collective bargaining influences wages positively, confirming the results of descriptive analysis. Despite being significant in all the years considered, its effect is not uniform over time, ranging from 11% of 2002 to 5% in 2010. Another significant element is the interaction variable referred to gender and PP, whose coefficient is significant and negative. This suggests that PP does not discriminate gender as, on average, the PP contributes to decreasing the wage gap between males and females.

The effect of individual, job and firm characteristics has been analyzed by controlling for males and females, separately (Table 3). Looking at human capital variables, we can see that the return of formal education and, especially, work experience is greater for females than for males, as coefficient of education and tenure show. The fact that women do not really succeed in increasing their wage is the evidence of the "glass ceiling" that operates in reducing the positive contribution of human capital. When considering firm characteristics, the impact of decentralized collective bargaining on the increase of wage is higher for man than for women, while performance pay returns women more than man.

Even now decentralized collective bargaining reflects the structural framework and seems to reproduce the same kind of discrimination.

Table 3
Logarithm hourly wage regressions, broken down by gender

VARIABLES	2002		2006		2010	
	Females	Males	Females	Males	Females	Males
Age 20-30	0.03***	0.03***	0.02***	0.02***	0.02***	0.02***
Age 30-40	0.07***	0.14***	0.11***	0.08***	-0.03***	0.03***
Age 40-50	0.14***	0.22***	0.19***	0.13***	0.02***	0.10***
Age 50-60	0.16***	0.24***	0.20***	0.12***	0.06***	0.12***
Age >60	0.10***	0.19***	0.16***	0.08***	0.02***	0.10***
Age 20-30	0.07***	0.06***	0.17***	0.05***	-0.02***	0.03***
Education	0.041**	0.04***	0.03***	0.03***	0.04***	0.04***
Type of contract	0.06***	0.11***	0.07***	0.13***	0.01***	0.10***
Full-time employees	0.03***	-0.01***	0.11***	0.16***	0.10***	0.13***
Tenure	0.07***	0.05***	0.09***	0.06***	0.08***	0.06***
Tenure square	-0.0***	-0.0***	-0.00***	-0.00***	-0.00***	-0.00***
Management position	0.28***	0.33***	0.23***	0.37***	0.32***	0.39***
North-east	0.09***	0.12***	0.05***	0.09***	0.08***	0.10***
Centre	0.04***	0.10***	-0.01***	0.08***	0.02***	0.05***
South and Islands	0.07***	0.10***	0.00***	0.07***	0.06***	0.05***
Small	0.04***	0.06***	0.01***	0.06***	0.00	0.02***
Small-Medium	0.06***	0.05***	0.01***	0.06***	0.05***	0.06***
Medium	0.06***	0.10***	0.00	0.09***	0.00	0.06***
Medium-large	0.09***	0.12***	0.06***	0.13***	0.01***	0.06***
Large	0.12***	0.13***	0.14***	0.24***	0.06***	0.13***
Decentralized collective bargaining	0.06***	0.13***	0.03***	0.05***	0.09***	0.10***
Performance pay	0.11***	0.01***	0.10***	0.04***	0.12***	0.04***
No. Observations	2.482.863	5.107.551	3.058.592	5.380.295	3.182.715	5.320.347
R sq.	**0.26**	**0.30**	**0.31**	**0.31**	**0.34**	**0.36**

*Estimations also control for industry dummies and occupational dummies, coefficients not reported for brevity, ***p<0,01*

Source: Our elaboration on the Structure of Earning Survey, ISTAT, years 2002-2006-2010.

6. CAN PERFORMANCE-PAY BE A SOLUTION TO DECREASE WAGE DISCRIMINATION?

The most interesting finding of the wage regressions is the non-discriminatory interaction between gender and PP. The extent to which PP affects the gender pay gap can be assessed by running a wage regression, by controlling for those employees receiving bonuses linked to productivity (PP=1) and for those do not (PP=0).

Of course the probability of receiving PP, as most of the economic relations, may be affected by *reverse causality* (Blau and Kahn, 2003), as a consequence of the concentration of women into typically female sectors that are more suitable for life and work reconciliation. As SES dataset does not permit to introduce variables to control these kind of phenomena, we investigate the correlation between the distribution of employees across the economic sectors and the incidence of PP (as a percentage of yearly wage). Results show weak correlations that cannot invalidate our research hypothesis (Tables 4 and 5).

Table 4

Employees broken down by economic sector (ATECO 2007) and gender, incidence of bonuses and performance pay on yearly hourly wages - in percent

Economic sectors	Employees		Incidence of PP on yearly hourly wage
	Males	Females	
B	0.40%	0.11%	15.24%
C	35.58%	21.27%	11.22%
D	1.16%	0.36%	15.91%
E	2.28%	0.69%	13.85%
F	8.37%	1.92%	11.41%
G	10.85%	15.93%	14.63%
H	11.68%	4.62%	12.42%
I	3.20%	6.02%	15.25%
J	4.03%	3.96%	14.5%
K	4.37%	5.19%	15.96%
L	0.16%	0.23%	13.19%
M	2.41%	3.62%	13.53%
N	6.83%	12.13%	13.68%
P	1.22%	2.21%	9.77%
Q	6.15%	19.80%	9.35%
R	0.80%	0.88%	14.01%
S	0.50%	1.07%	10.17%
TOTAL	**100**	**100**	**12.46%**

Source: Our elaboration on the Structure of Earning Survey, ISTAT, year 2010

Table 5
Pearson correlation coefficients between employment, incidence of performance pay, by gender

Correlation	Incidence of PP
Males	-0.25
Females	-0.30

Source: Our elaboration on the Structure of Earning Survey, ISTAT, year 2010

Gender is statistically significant in both regressions but the differential on hourly wage is lower for employers receiving PP (Table 6). These findings confirm the evidence that PP decreases wage differential among sexes, by reducing the gap in wages between males and females.

Table 6
Logarithm hourly wage regressions, dependent variable: log yearly hourly wage

Variables	PP=0	PP=1
Gender	0.12***	0.11***
Age 20-30	0.02***	0.01***
Age 30-40	0.08***	0.17***
Age 40-50	0.09***	0.24***
Age 50-60	0.08***	0.18***
Age >60	0.02***	0.09***
Education	0.04***	0.05***
Type of contract	0.12***	0.07***
Full-time employees	0.12***	0.07***
Tenure	0.08***	0.03***
Tenure square	-0.00***	0.00***
Management position	0.40***	0.31***
North-east	0.05***	0.05***
Centre	-0.04***	-0.05***
South and Islands	-0.10***	-0.05***
Small	0.02***	-0.03***
Small-Medium	0.05***	0.03***
Medium	0.04***	0.02***
Medium-large	0.04***	0.02***
Large	0.09***	0.10***
Decentralized collective bargaining	0.10***	0.08***
No. Observations	**6.230.615**	**2.272.446**
R sq.	**0,35**	**0,34**

Estimations also control for industry dummies and occupational dummies, coefficients not reported for brevity

Source: Our elaboration on the Structure of Earning Survey, ISTAT, year 2010 ***p<0,01.

With regard to human capital variables (i.e. age and education) they show significant coefficients in both cases and show higher market returns for receivers

of PP than for workers do not; the only exception is the length of service in enterprises, mainly because it deals with the expertise directly related to job and firm. Conversely, returns of job characteristics (type of employment contract, working time, management position and length of service in enterprises) are higher for employees that do not receive PP. In the same direction go the returns of characteristics of firm (dimension, localization), markedly favorable to non-PP employees. Also decentralized collective bargaining has a higher market return for employees not receiving PP, in line with the other variables referred to institutional structure of wages. This result may be due to the fact that decentralized bargaining considers some features related to job (particularly, tenure) the key element in the increase of wages.

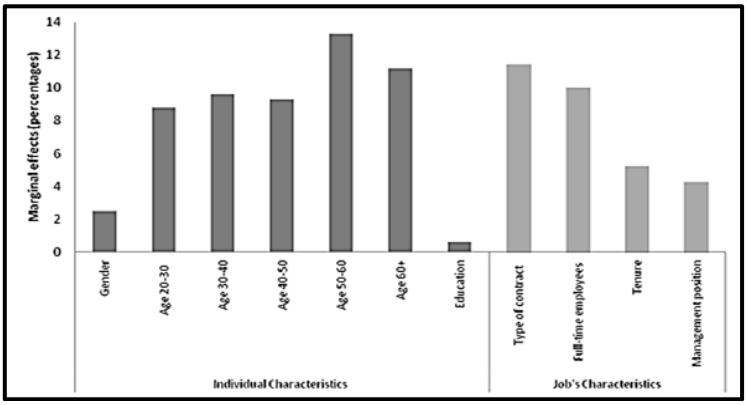
Our evidence confirms that PP is *more attached to the worker* and non-PP salary *more attached to the job* in Italy in 2010, giving a positive contribution to the reduction of GPG.

Finally, we modelled the probability of perceiving PP with a probit regression in order to point out which are the most relevant factors in influencing the probability of having the performance pay.

In Table 7 are reported the regression coefficients[5] and the predicted probabilities of receiving PP; the marginal effects are calculated holding all other variables in the model at their means (in case of continuous variables) or the discrete change from the base level (for factor level). From the results of estimations, we notice that the probability of receiving PP is influenced from gender: being a male increases the probability of receiving PP by 2,5% (Figure 4). With regard to other individual characteristics, age is particularly significant for those people who have reached maturity: employers between 50 and 60 years, having gained experience, increase their chance to receive PP by 13% with respect to the younger (<20). The number of years of education has a positive impact on the probability of perceiving PP despite of moderate extent. Looking at job characteristics, having a full-time contract has a considerable impact in increasing the probability of receiving PP, mostly due to a greater commitment and involvement in the job than employees with part-time contracts. Coherently, type of employment contract significantly influences the probability of receiving PP. As expected, having a long-term and a full-time contract increases the chance of PP by 11% and 10%, respectively. This may suggest that flexible labour force is less likely to receive PP as they have less bargaining power, are less commitment and participation to job.

[5] The probit regression coefficients give the change in the z-score or probit index for a one unit change in the predictor.

Figure 4
Contribution of individual and job characteristics
to the probability of perceiving PP** - Year 2010



*** Results are based on a probit model to explain employees participation in PP jobs.*

Source: Our elaborations on the Structure of Earning Survey, ISTAT, year 2010.

Table 7
Probit estimation, coefficients and marginal effects.
Dependent variable: receiving performance pay (1/0)

Variables	Coefficients	Marginal effects
Gender	0.10***	0.03
Age 20-30	0,43***	0.09
Age 30-40	0.47***	0.10
Age 40-50	0.45***	0.09
Age 50-60	0.61***	0.13
Age >60	0.50***	0.11
Education	0.026***	0.05
Type of contract	0.46***	0.11
Full-time employees	0.41***	0.1
Tenure	0.21***	0.05
Tenure square	-0.01***	-0.00
Management position	0.17***	0.04
North-east)	-0.05***	-0.01
Centre	-0.12***	-0.03
South and Islands	-0.19***	-0.05
Small	0.12***	0.02
Small-Medium	0.44***	0.1
Medium	0.50***	0.11
Medium-large	0.67***	0.16
Large	0.92***	0.24
Decentralized collective bargaining	0.87***	0.22
Constant	-3.41***	
LR Chi2	**0.24**	

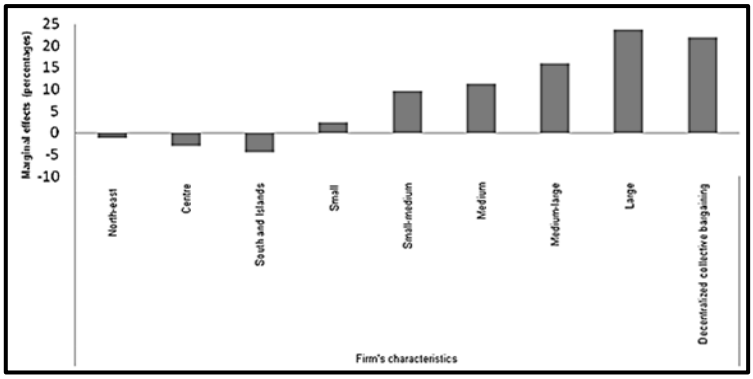
*Estimations also control for industry dummies and occupational dummies, coefficients not reported for brevity, ***p<0,01*

Source: Our elaboration on the Structure of Earning Survey, ISTAT, year 2010.

Still looking at characteristics of job, having a management position and years of service in enterprise increases the probability of receiving PP in a considerable way, by 5,2% and 4,2%, respectively.

Also features related to the firm have high impact on PP. Size of enterprise is definitely a significant variable: the larger the enterprise, the greater the probability of receiving PP; an enterprises with more than 500 employees has a 24% greater probability of granting PP than one with less than twenty employees (Figure 5). Geographical localization is also significant: PP are more likely to be found in the North-east of Italy, while the South is the territorial unit with the lowest probability. Decentralized collective bargaining is one of the most significant variables with a positive contribution to PP of 22%. This result reflects one of the most relevant features of decentralized collective bargaining in Italy; although it is practiced at company level, it has to deal with PP, that is completely related to individual performance, in practice.

Figure 5
Contribution of firm characteristics to the probability of perceiving PP* - Year 2010



** Results are based on a probit model to explain employees participation in PP jobs.*

Source: Our elaborations on the Structure of Earning Survey, ISTAT, year 2010.

7. CONCLUSIONS

This statistical exercise provides evidence that it is not so clear which of the two main literary approaches on GPG fits better for Italy.

Despite the gap in wages has decreased over this period, and the return of education of women is higher than those of men, in particular for tertiary education, the institutional factors, such as segregation on low-paid sectors and a different wage structure, still discriminate women and determine a significant wage differential. Still now, women have to face the *glass ceiling*, that consists

in an invisible barrier, made of social conventions and norms, that makes promotion to the next stage most demanding and difficult for women.

In spite of normative rules have increase the role of decentralized collective bargaining, the system is not able to decrease the GPG in a remarkable way. In fact, although wages increased for both sexes in presence of bargaining, the percentage difference of wages is still considerable. Its presence implies a more flexible way to return the employees but it also reflects the institutional framework by reproducing the same kind of discrimination. This evidence seems to be consistent with the Institutional approach.

When considering the component of wages related to individual performance, GPG decreased. Remuneration connected to performance has a positive influence on the equal distribution of wages, as it gives higher returns to characteristics of the employees than to those of jobs and firms. We found the evidence that PP is more attached to the worker and non-PP salary more attached to the job in Italy in 2010. This is translated in a positive contribution to GPG as women education endowment receives a higher market reward. It seems that when wages are related to individual performance, human capital is returned more equally.

At the moment, in spite of normative rules increasing the role of decentralized collective bargaining, the system is not able to decrease the GPG significantly. The decentralized collective bargaining could be a key element in decreasing the wage gap but it is not working in that direction. Coherently with the other variables referred to institutional structure of wages, it returns more job and firm characteristics than individual ones. Being centered on some features related to job (particularly, tenure), it seems to reproduce discrimination and is not able to promote an equal distribution of wages. Besides, the access of women to performance pay is still low and it is in turn influenced by mechanism of horizontal and vertical segregation. As the market solution to gender gap is not a solution, the only way to tackle the GPG is through policies that directly address the problem by changing the wage system and promoting equal distribution of wages.

Moreover, mix of policies that consider both human capital and institutional factors could represent a better way to address the problem and contribute to increase distribution policy effectiveness.

BIBLIOGRAPHY REFERENCES

ADDABBO T.; FAVARO D.; MAGRINI S. (2007). “The distribution of the gender wage gap in Italy: does education matter?”. *Center for Economic Research Working Paper*, Volume number:4.

ADDABBO T.; FAVARO D (2007). “Differenziali salariali per sesso in Italia. Problemi di stima ed evidenze empiriche”. In Rustichelli (ed.): *Esiste un differenziale retributivo in Italia? Il lavoro femminile tra discriminazioni e diritto alla parità di trattamento*.

BECKER G. (1971). “Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education”. *National Bureau of Economic Research*, The University of Chicago Press.

BECKER G. (1985). “Human Capital, Effort and the Sexual Division of Labor”. *Journal of Labor Economics*, Volume Number: 3.

BLAU F.; KAHN L. (2000). “Gender Differences in Pay". *Journal of Economic Perspectives, American Economic Association*, volume number: 14, pp. 75-99.

BLAU F.; KAHN L. (2003). “Understanding International Differences in the Gender Pay Gap". *Journal of Labour Economics*, volume number:21, pp. 106,144.

BLAU F.; KAHN L. (2008). “Women's work and wages”. In The New Palgrave Dictionary of Economics, Palgrave Macmillan

DALY A.; KAWAGUCHI A.; MENG X.; MUMFORD K. (2006). “The Gender Wage Gap in Four Countries”. *Institute for the Study of Labor (IZA),* Discussion Paper Volume number: 1921.

DE BLAS A.; CORRALES-HERRORO H.; MARTIN-ROMAN A (2012). “Glass Ceiling or Slippery Floors? Understanding Gender Differences in the Spanish Worker’s Compensation System”. *Estudios de Economía Aplicada,* Volume Number 30(1), pp. 311-340.

DE LA RICA S.; DOLADO J.J.; VEGAS R. (2010). “Performance pay and the gender wage gap: evidence from Spain?”. *Institute for the Study of Labor (IZA),* Discussion Paper Volume number: 5032.

DE SANTIS S.; CARDINALESCHI S.; ROCCI F. (2014a). “Occupational segregation and patterns of wage bargaining: evidences from Italy”. Paper presented at the 13th Eurasia Business and Economics Society, Istanbul, Turkey.

DE SANTIS S.; GNESI C.; CARDINALESCHI S.(2014b). “Occupational Segregation and Patterns of Wage Bargaining: Evidences from Italy”. Paper presented at the XI Jornadas de Economía Laboral , Barcellona, Spain.

EUROFOUND (1993). “Agreement Of 23 July 1993”. Available at: http://www.eurofound.europa.eu/efemiredictionary/agreement-of-23-july-1993 (13th December, 2015).

EUROFOUND (2010). “Addressing the gender pay gap: Government and social partner actions”. Eurofound Publications.

EUROSTAT (2009).“Development of econometric methods to evaluate the Gender pay gap using Structure of Earnings Survey data”. 03/11/2009. Available at: http://epp.eurostat.ec.europa.eu (28th October, 2015).

FRANCINE D.B.;LAWRENCE K. (2000). "Gender Differences in Pay". *Journal of Economic Perspectives,* Volume Number: 14, pp. 75-99.

GNESI C.; DE SANTIS S.; CARDINALESCHI S. (2014). “Gender Pay Gap and Decentralized Collective Bargaining: Evidence from Italian Firms”. Paper presented at the 13th Eurasia Business and Economics Society, Istanbul, Turkey.

INSTITUTE FOR SOCIAL RESEARCH (2007). “Influence of collective bargaining model on gender wage gap”.

INTERNATIONAL LABOUR ORGANIZATION (2012). “Gender Equality and Social Dialogue: An Annotated Bibliography”. ILO Social Dialogue Sector, International Labour Office.

INTERNATIONAL TRADE UNION CONFEDERATION (2008). "The Global Gender Pay Gap", ITUC report.

NEW JNCHES EQUALITY WORKING GROUP (2011). "The Gender Pay Gap - A Literature Review". Available at: http://ucea.ac.uk/download.cfm/docid/39012615-27AC-42CA-9FE9EC1B5F23B422 (28th October, 2015).

LEMIEUX T.;PARENT D. (2009). "Performance pay and Wage inequality". *Quarterly Journal of Economics,* Volume number: 124, pp. 1-49.

MUNOZ-BULLON, F. (2010). "Gender-compensation differences among high-level executives in the United States". *Industrial Relations*, Volume number: 49, pp. 346-370.

PLANTENGA J.; REMERY C. (2006). "The gender pay gap. Origins and policy responses. A comparative review of thirty European countries". OPEC, Luxemburg.

PORCARI S.; DEVICIENTI F. (2007). "Contrattazione aziendale integrativa e differenziali salariali territoriali: informazioni dall'indagine sulle imprese della Banca d'Italia". In *Monografie sul Mercato del lavoro e le politiche per l'impiego*, Volume number: 5, pp. 72-96.

RICCI A (2010). "La retribuzione integrativa e disuguaglianze di genere: il ruolo dei fattori osservabili". *Studi Isfol,* Volume number: 1, pp. 6-20.

ZIZZA R.(2013). "The gender wage gap in Italy". *Questioni di Economia e Finanza*, Volume number: 172.