WAGE INEQUALITY INDICES IN SMALL ENTERPRISES - YEAR 2014

Main results and methodological note

The analysis of wages distribution is notoriously complex also considering that up to now the available information was relatively limited. This experimental statistic intends to contribute to the analysis of wages inequality, by using an individual database obtained from the integration of different available sources on labour market and enterprises. This database is a result of the innovation process - based on conceptual and statistical, as well as physical, integration of different sources - that Istat has undertaken in recent years, developing the Integrated System of Statistical Registers (ISSR).

For the first time, a census database is available linking at the single statistical unit level (the job position) the information on the main characteristics of job position, employee, enterprise where the position is located and territory where it operates, and allowing to study their joint distribution.

The objective is analysing the inequality and wage differentials of the private sector by a plurality of analysis dimensions and distribution indicators, including the inequality decomposition in the within and between components (using the entropy indices). The hourly wage can be analysed in association not only with the professional qualification, the type of contract and the working time regime (examples of job position characteristics), but also with the seniority in the position, the age and citizenship of the employee or with the productivity, employment structure and group membership of the enterprise or again with the occupational and productive performance of the territory (just to give some examples).

At the moment, the field of observation is limited to dependent positions in enterprises with less than 50 employees based in a single municipality, excluding the agricultural and insurance-financial sectors. They represent a third of the enterprises, around 1 million and 400 thousand enterprises, for a total of 7 million and 830 thousand job positions (47.8% of the private sector job positions).

The choice of considering only small enterprises answers to the need of accurately measuring the wage inequalities in relatively simple economic units, highly representative of the Italian productive system and with strong and direct relationships with the territory; at a later time the indicators will be extended to medium and large multi-localized enterprises.

Main results

In most countries, wage growth over the last few decades has been lower than that of labour productivity, leading to a decline in the share of value added attributable to dependent work. This trend was accompanied by a significant increase in wage inequality[1], which was the result of a combination of many factors including technological skill-biased change, the acceleration of the internationalization of markets, the weakening of labour market institutions and a series of social and institutional rigidities, beyond that a growth problems observed in several developed countries and areas.

GRAPH 1 - ANNUAL AVERAGE REAL WAGE GROWTH IN THE G20 COUNTRIES. Years 2006-2015 (percentage values).
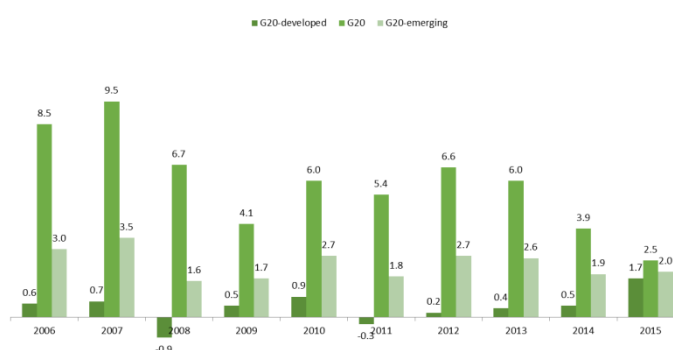
*Note: 2015 estimations are preliminary because not for all the countries are available.*
Source: ILO estimations on ILO Global Wages Database.

Between 2012 and 2015, real wages increased in all G20 developed countries, rising from 0.2% growth (between 2011 and 2012) to 1.7% between 2014 and 2015, the highest rate in the last ten years (Graph 1). In 2015, growth reached 2.2% in the United States, 1.5% in northern, southern and western Europe and 1.9% in European Union countries (Graph 2).

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[1] Strictly speaking, the term inequality refers to the effects of an unfair treatment. Here, the term is used as a synonym of differential, that is, the product of diversity of treatment that can also be socially acceptable (when, for example, derive from different commitment and capacity).

In our country, we have gone from the decrease of over 6% observed between 2011 and 2013, to a growth of 0.2% between 2013 and 2014 and of 1% between 2014 and 2015.

GRAPH 2 - ANNUAL AVERAGE REAL WAGE GROWTH FOR SELECTED DEVELOPED COUNTRIES. Years 2006-2015 (index numbers, 2006=100).
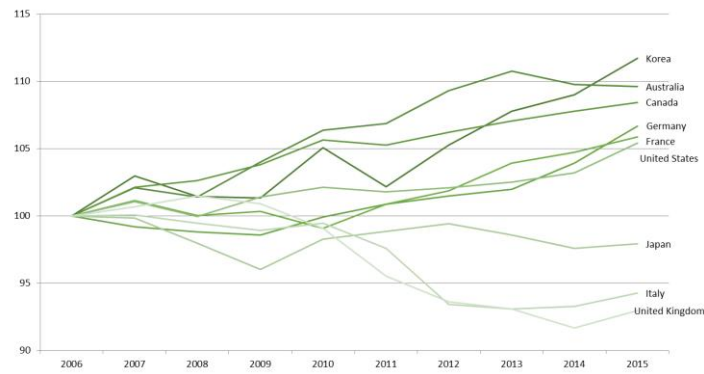
Source: ILO estimations on ILO Global Wages Database.

If we consider only the private sector, in 2014, the gross hourly wage of dependent employees (expressed in purchasing power parity, PPA) is close to the European one (Graph 3): the average is equal to 14.98 (14.61 in the EU28 and 15.72 in the EuroZone18) and the median value stands at 11.99 (against 12.34 and 13.39 respectively).

GRAPH 3 - GROSS HOURLY WAGE IN EUROPE IN THE PRIVATE SECTOR OF INDUSTRY (INCLUDING CONSTRUCTION) AND SERVICES. Year 2014 (average and median values in PPA)
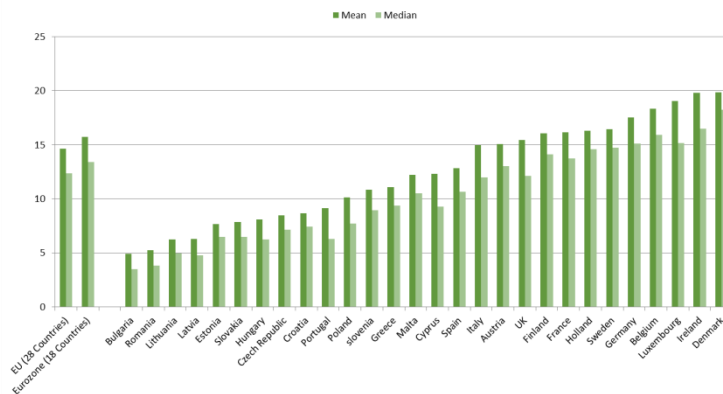

Source: Eurostat, Structure of earnings survey.

Inequality between and within enterprises

In order to analyse the extent to which wage inequality[2] is associated with the characteristics of the job position and of the individual occupying it, but also with the specific characteristics of the company/local unit in which the job position is placed, from here on out, the analysis has been restricted to the private sector dependent positions in uni-localized companies with less than 50 employees, excluding those in the insurance-financial sector.

GRAPH 4 - AVERAGE, MEDIAN, FIRST AND NINTH DECILE OF GROSS HOURLY WAGE. Year 2014 (values in euros)

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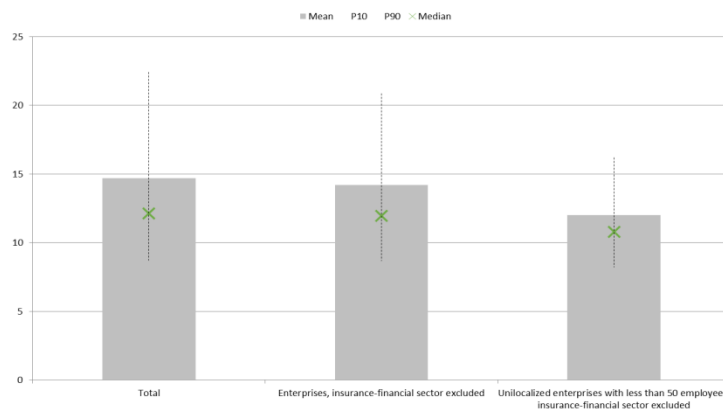
[2] From now on, the distribution of hourly wages is weighted with the number of yearly hours paid; this adjustment makes possible to avoid an over-representation of short employment periods and, because of the link between pay and length of the employment period, to over-represent some segments of the distribution. The insertion of this weight system leads to a slight increase in mean and median values as well as percentiles, and a slight decrease in inequality.

This choice was dictated, on the one hand, by the availability of information[3], on the other hand, by wanting to restrict the field of observation to small-medium sized companies based in a single municipality[4], assuming that these companies are those with stronger links with the territory and also those where the performance and characteristics of the company directly determine the demand for employees and their wages[5].

The exclusion of the insurance-financial sector - the one with the highest wage levels - leads to a reduction in wages and, consequently, a decrease in inequality (Graph 4).

The exclusion of multi-localized companies or companies with more than 50 employees also leads to a further reduction in pay levels and inequality in distribution.

If we also break down the wage inequality - through the entropy indices - in the component attributable to the differences between the job positions within the same company (*within*) and in the component due to the differences between companies (*between*), it is evident how the companies uni-localized with less than 50 employees present a lower level of wage inequality and a much lower weight of the within component compared to other companies, above all in the high tail of the distribution.

Table 1 shows, in fact, how, for the positions in uni-localized companies with less than 50 employees, the two components are equivalent if we consider the first two indices, while the *within* component prevails if we consider the GE2 index.

In other words, for the lowest wages, wage inequality, in addition to being determined by the characteristics of the job position and of the individual occupying it, are associated with the specific characteristics of the company/local unit in which the job position is located. As the hourly wage level increases, inequality is increasingly determined by differences within companies.
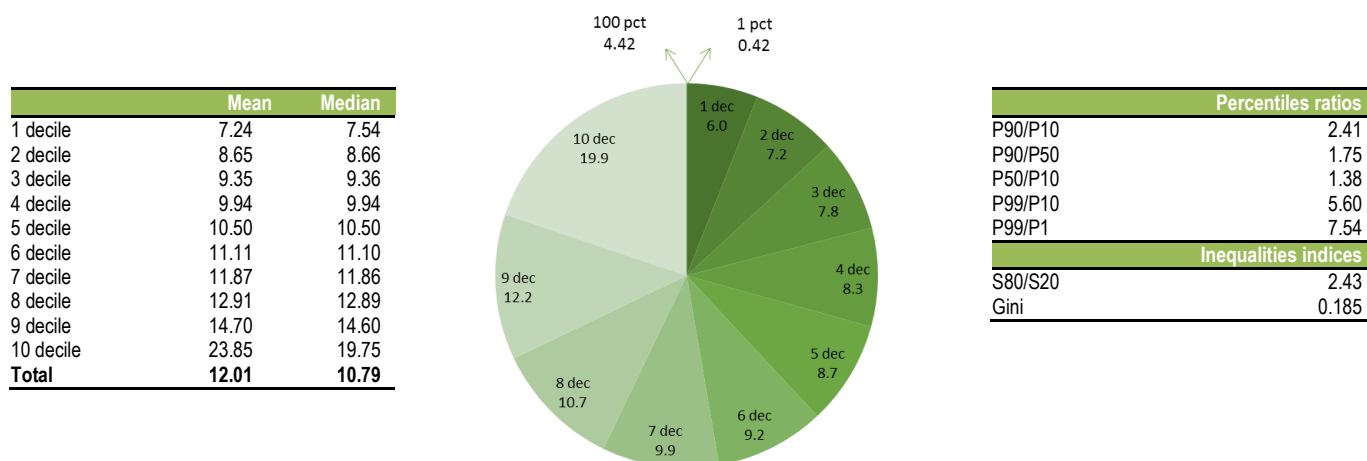
TABLE 1 – INEQUALITY INDICES DECOMPOSITION OF GROSS HOURLY WAGES BY TYPE OF ENTERPRISE. Year 2014

	Mean logarithm deviation ($\alpha=0$)	Theil ($\alpha=1$)	GE2 ($\alpha=2$)
Total	**0.10178**	**0.14198**	**0.53024**
- Between	*0.06008*	*0.06911*	*0.10509*
- Within	*0.04170*	*0.07287*	*0.42515*
Unilocalized <50 employees vs. Other enterprises	**0.10178**	**0.14198**	**0.53024**
- Between	*0.00954*	*0.00937*	*0.00924*
- Within	*0.09224*	*0.13261*	*0.52100*
Unilocalized <50 employees	**0.06316**	**0.08092**	**0.15401**
- Between	*0.04022*	*0.04624*	*0.06328*
- Within	*0.02294*	*0.03468*	*0.09073*
Other enterprises	**0.11500**	**0.16317**	**0.67127**
- Between	*0.05862*	*0.06772*	*0.10788*
- Within	*0.05638*	*0.09545*	*0.56339*

Gross hourly wages in uni-localized companies with less than 50 employees[6]

On average the hourly wage is equal to 12.01 euros and half of the job positions receive less than 10.80 euros (Graph 5).

GRAPH 5 - GROSS HOURLY WAGE FOR SOME DISTRIBUTION INDICATORS AND PERCENTAGE COMPOSITION OF THE REMUNERATIONS AMOUNT BY TENTH OF GROSS HOURLY WAGE. Year 2014

	Mean	Median
1 decile	7.24	7.54
2 decile	8.65	8.66
3 decile	9.35	9.36
4 decile	9.94	9.94
5 decile	10.50	10.50
6 decile	11.11	11.10
7 decile	11.87	11.86
8 decile	12.91	12.89
9 decile	14.70	14.60
10 decile	23.85	19.75
Total	**12.01**	**10.79**

100 pct 4.42
1 pct 0.42
1 dec 6.0
2 dec 7.2
3 dec 7.8
4 dec 8.3
5 dec 8.7
6 dec 9.2
7 dec 9.9
8 dec 10.7
9 dec 12.2
10 dec 19.9

Percentiles ratios	
P90/P10	2.41
P90/P50	1.75
P50/P10	1.38
P99/P10	5.60
P99/P1	7.54
Inequalities indices	
S80/S20	2.43
Gini	0.185

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[3] In order to exploit all the information available on the enterprises, the extended FRAME-SBS register (integrated information system for the analysis of the structure and competitiveness of the business system) is used; it concerns all the active enterprises (for at least 6 months in the year) except those operating in the agricultural or financial/insurance sector. It was decided to work on uni-localized enterprises to avoid the inevitable distortions deriving from the allocation to the local units of the parent company's characteristics (e.g. in terms of turnover, value added, gross operating margin, etc.).

[4] Among the uni-localized enterprises are included those with both one local unit and more local units placed in the same municipality.

[5] These companies represent about a third of private companies; they are 1 million 404 thousand enterprises, for a total of 7 million 830 thousand job positions with remuneration above zero and more than one hour of remuneration.

[6] The analyses conducted from here on, graph and tables included, refer to positions in uni-localized enterprises with less than 50 employees (agricultural and insurance-financial sectors excluded).

The 10% of the less paid job positions receive an average of € 7.24 per hour, while in the last 10th the average hourly wage rises to € 23.85 (€ 53.06 in the top 1%, Graph 1). On the other hand, over 70% of job positions have hourly wages below the average.

To the fifth highest wage is allocated a share 2.43 times higher than the one devoted to the fifth of the lowest wages (S80/S20).

10% of the highest wages engross almost 20% of the total amount of wages received (10% of the lowest wages only 6%), while half of the positions (those with lower wages) are paid with the 38% of this amount.

The Gini index stands at 0.185 but on the extreme queues of wages (bottom and top 1%) the pay gap is more evident: the lowest 1% is paid with less than 1% of total remuneration amount, while the top 1% receives 4%; moreover, the value of the 99th percentile is 7.54 times higher than that of the 1st.

Characteristics of the job position

Professional qualification is the most important factor in determining the level of remuneration. The managerial positions are present exclusively in the last 10th of the distribution, arriving to represent about a third of the top 1%, while the executive positions begin to appear only at the eighth tenth (Graph 6).

On the other hand, the most consistent share of apprentices is found in the first and second tenths, the blue collars positions characterize the medium-low part of the distribution and the white collars the medium-high part.

GRAPH 6 - JOB POSITIONS BY PROFESSIONAL QUALIFICATION, TYPE OF CONTRACT, WORKING-TIME REGIME AND ANNUAL COVERAGE OF THE CONTRACT BY TENTH OF GROSS HOURLY WAGE. Year 2014 (percentage values)
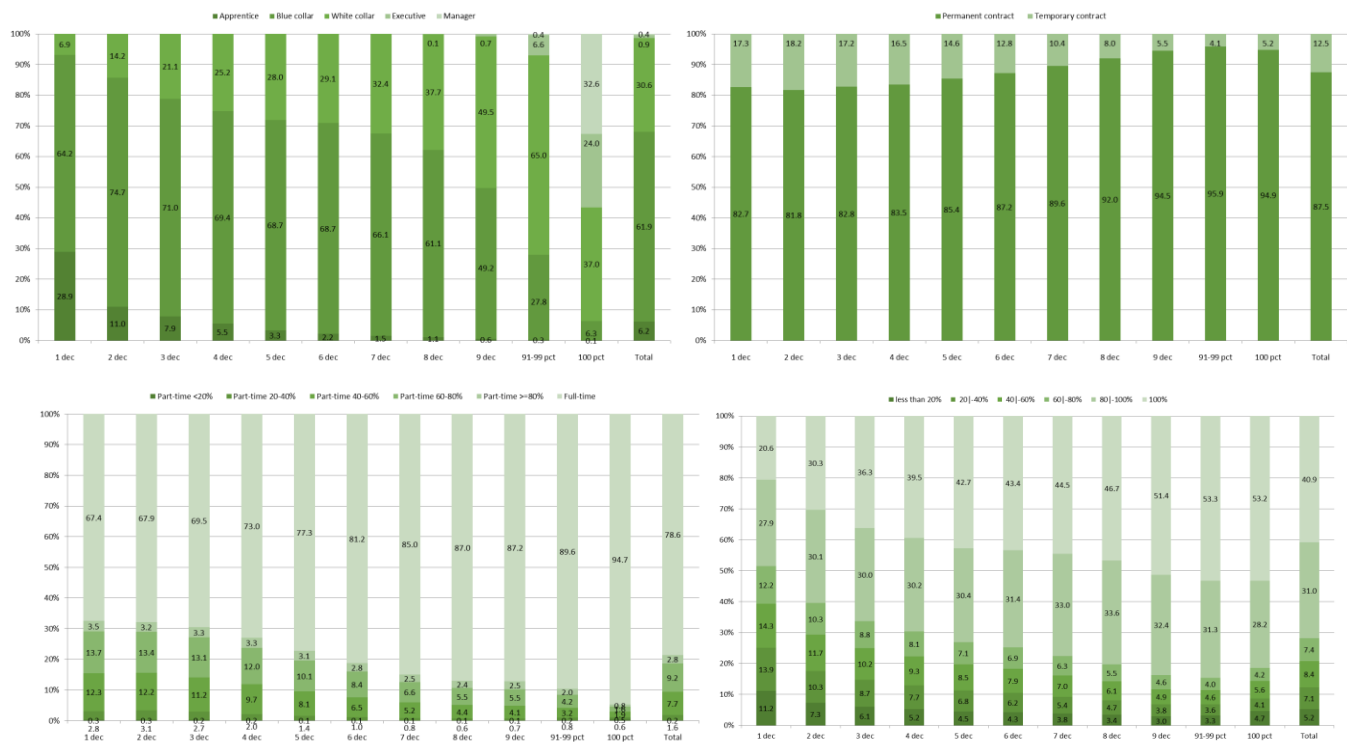
Temporary contracts - more often the prerogative of the beginnings of a working career - are more frequently associated with lower-paid positions; on the contrary, those with permanent contracts represent about 80% of the first 10th and over 95% of the last 10th. The full-time positions are present to a greater extent in the medium-high part of the distribution, while the part-time positions decrease with the increase in the hourly wage level, similarly to what is observed for the job positions that are active only a part of the year.

TABLE 2 – INEQUALITY INDICES DECOMPOSITION OF GROSS HOURLY WAGES BY JOB POSITIONS CHARACTERISTICS. Year 2014

	Mean logarithmic deviation (α=0)	Theil (α=1)	GE2 (α=2)
Total	0.06316	0.08092	0.15401
- Between	0.02643	0.03434	0.05264
- Within	0.03674	0.04658	0.10137

To summarize the information available, we can still resort to the decomposition of the wage inequality in the component attributable to the differences within the groups, homogeneous by characteristics of the job position (professional classification, type of contract, working-time regime and annual contract coverage), and that due to the differences between the groups. The within component is always majority (even for the index that is more sensitive to the low tail, its contribution does not fall below 57%) and its share increases with the increase in the hourly rate, reaching approximately two thirds in the index most sensitive to the right tail (Table 2).

Employee's characteristics

If the individual skills, such as the level of education and tenure - combined in the different types of professional qualification - play, as expected, an important role in determining wage levels, significant differences between wages are also observed with respect to gender or to citizenship (Graph 7). Although women have higher average educational qualifications than men, their job positions represent the 47% of the tenth of the lowest wages and less than a fifth of the 1% higher. The positions of dependent employees with foreign citizenship are also more present in the lower queues of distribution, especially with reference to African citizens, BRIC countries or non-EU countries.

GRAPH 7 – JOB POSITIONS BY DEPENDENT EMPLOYEE'S SEX AND CITIZENSHIP AND TENTH OF GROSS HOURLY WAGE. Year 2014 (percentage values)
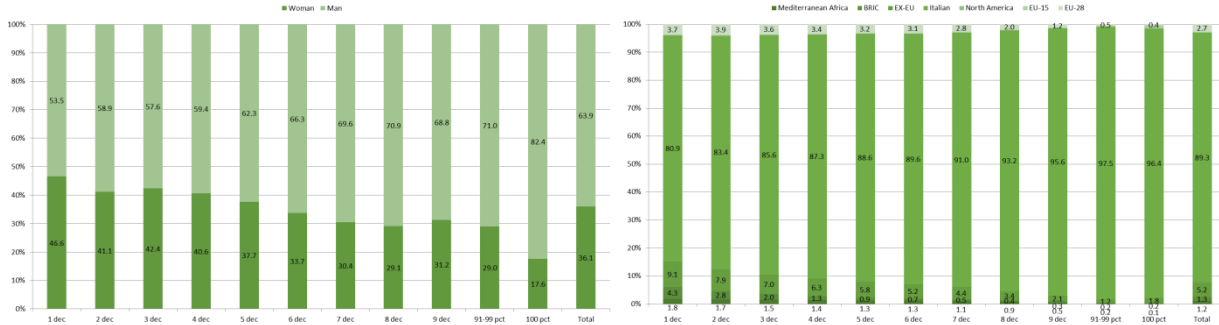
Along the tenths of the distribution, it is not surprising that the percentage of positions occupied by persons under 40 years of age is greater in the lower part; young workers who occupy positions in the 10% more paid are few, and they are still less in the 1% higher (Graph 8).

GRAPH 8 - JOB POSITIONS BY AGE AND TENURE (IN THE JOB POSITION) BY TENTH OF GROSS HOURLY WAGE. Year 2014 (percentage values)
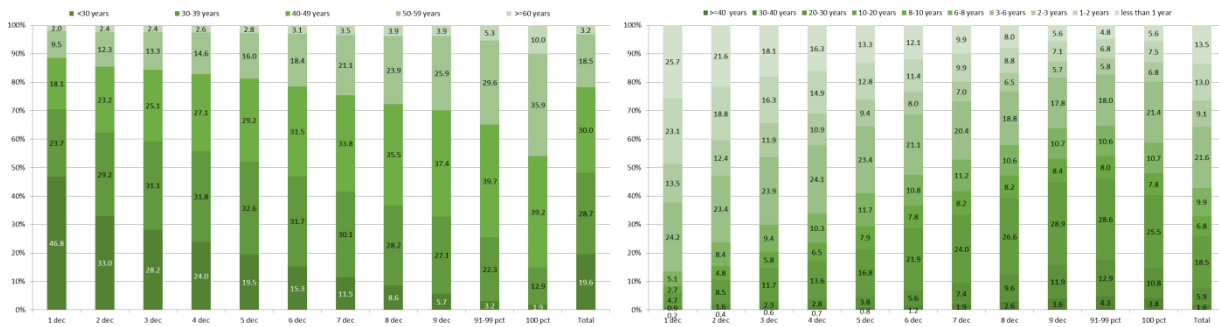
Similarly, the share of job positions occupied by newly-hired dependents employees tends to decrease as the wage level increases: almost half of the less paid positions, those of the first-tenth, have a tenure in the company of less than two years, against the scarce 20% observed among the tenths of medium level. The positions that can boast over 20 years of service are located above all in the medium-high part of the distribution.

As the wage level increases, the share of dependent employees who have occupied two or more positions at the same time decreases (from 6.4% in the first 10th to 3.6% between the 91 and the 99th percentiles to achieve 4,2% in the top 1%) and the share of dependent employees who changed their position also decrease (from 19.8% to 7.5% to go back to 8.7%) (Graph 9).

GRAPH 9 – JOB POSITIONS BY DEPENDENT EMPLOYEE'S LEVEL OF EDUCATION AND NUMBER OF JOB POSITIONS HOLD IN THE YEAR[7] BY TENTH OF GROSS HOURLY WAGE. Year 2014 (percentage values)
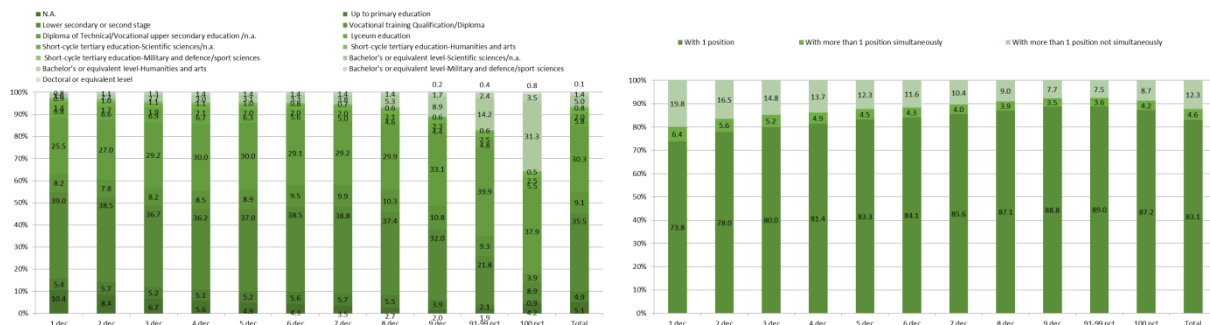
People with primary or secondary education make up the vast majority of the dependent employees on the left side of the distribution, while those with university degrees or with higher qualifications dominate the last 10th (Graph 9). However, it is evident that a post-secondary or university education does not always guarantee well-paid employment; a significant share of positions held by graduates is present, in fact, in

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[7] A 78.8% of individuals occupied only one job position during the year; a 6.3% occupied more positions at the same time; in general, a 14.8% changed positions.

all tenths of the distribution (4.8% in the first 10th, 6% in the second, slightly more than 7% in tenths from the third to the sixth, against a value of 20.2% between 91 and 99th percentile and 38.7% for the top 1%).

With reference to the characteristics of the worker, the decomposition of the wage inequality in the component attributable to the differences within the homogeneous groups (by gender, citizenship, age, seniority, educational qualification and number of positions held), and that due to the differences between the groups, shows how the within component is even higher than that observed for the characteristics of the job position (even for the index more sensitive to the low tail its contribution does not fall below 68%) and its relevance increases to the increase the level of hourly wage, representing as much as 84% in the most sensitive index to the right tail (Table 3).

TABLE 3 - INEQUALITY INDICES DECOMPOSITION OF GROSS HOURLY WAGES BY DEPENDENT EMPLOYEE'S CHARACTERISTICS. Year 2014

	Mean logarithm deviation (α=0)	Theil (α=1)	GE2 (α=2)
Total	**0.06316**	**0.08092**	**0.15401**
- Between	*0.01990*	*0.02156*	*0.02436*
- Within	*0.04326*	*0.05936*	*0.12965*

Enterprise characteristics

The wage levels are variously associated with the specific sectors of economic activity and with the different distribution of job positions according to the professional classification (Graph 10). On the other hand, even with equivalent job positions, some enterprises - more often those characterized by greater size and productivity - guarantee better pay than others. The share of job positions placed in enterprises operating in medium-high technology and knowledge sectors increases with the increase in the wage level. On the contrary, positions in low-tech sectors, in buildings, in accommodation and catering, as well as in the rental sector, travel agencies, business support services and service activities are mainly present in the lower tenths, constituting two-thirds of the positions with hourly wages belonging to the first 10th and less than a quarter of those belonging to the last (about one fifth in the top 1%).

GRAPH 10 – JOB POSITIONS BY SECTOR OF ECONOMIC ACTIVITY AND TENTH OF GROSS HOURLY WAGE. Year 2014 (percentage values)
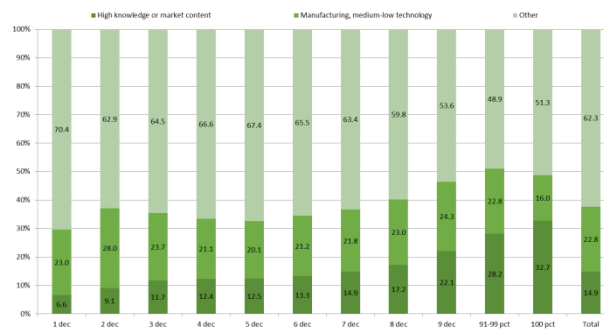
The highest hourly wages concern above all the positions in medium-large enterprises or with a high percentage of dependent employees (Graph 11): the best wages, those belonging to the last 10th, come from companies with more than 10 employees in almost 70% of the cases (the share falls to 34% in the first 10th) and for over 90% from enterprises with a share of dependent employees out of the total number of employees exceeding 75% (61% in the first 10th).

Finally, the companies that pay the largest hourly wages are those who have been on the market for the longest time or who can rely on a greater intensity of relationships (both because they belong to domestic groups, but above all multinationals, and because they are exporters) (Graf. 12). The ¾ of the wages of the last 10th pay job positions located in enterprises active for over 10 years; 43% pay positions in enterprises that export and 43% in companies belonging to groups; the latter percentage rises to 62% in the top 1% and drops to 5.4% in the first 10th.

GRAPH 11 – JOB POSITIONS BY NUMBER OF EMPLOYEES IN THE ENTERPRISES AND SHARE OF DEPENDENT EMPLOYEES ON TOTAL EMPLOYEES BY TENTH OF GROSS HOURLY WAGE. Year 2014 (percentage values)
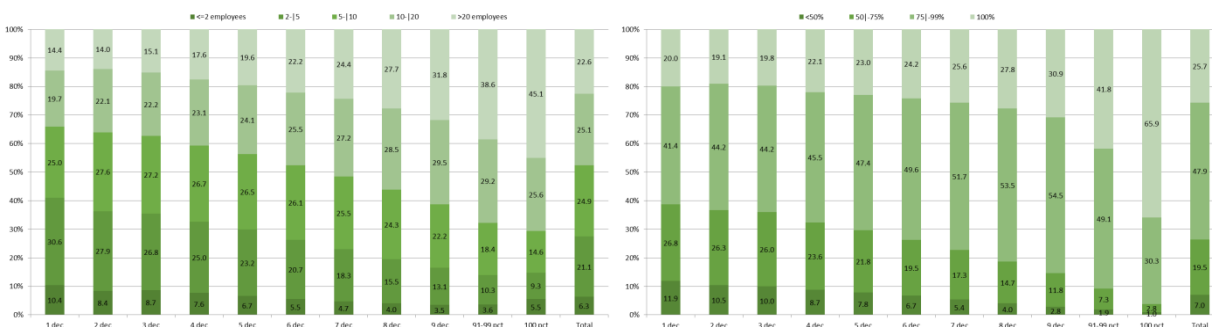
Productivity is the business characteristic most closely associated with wage levels, with hourly wages that increase significantly as its value increases: the 79% of the positions between 91 and 99th percentile are in companies with over 40 thousand euro of value added per employee, share that rises to 84.1% in the top 1% (in the first 10th the value is equal to 10%).

GRAPH 12 – JOB POSITIONS BY GROUP MEMBERSHIP, SENIORITY OF THE COMPANY IN THE MARKET, PRESENCE OF EXPORT ACTIVITY AND LEVEL OF VALUE ADDED BY TENTH OF GROSS HOURLY WAGE. Year 2014 (percentage values)
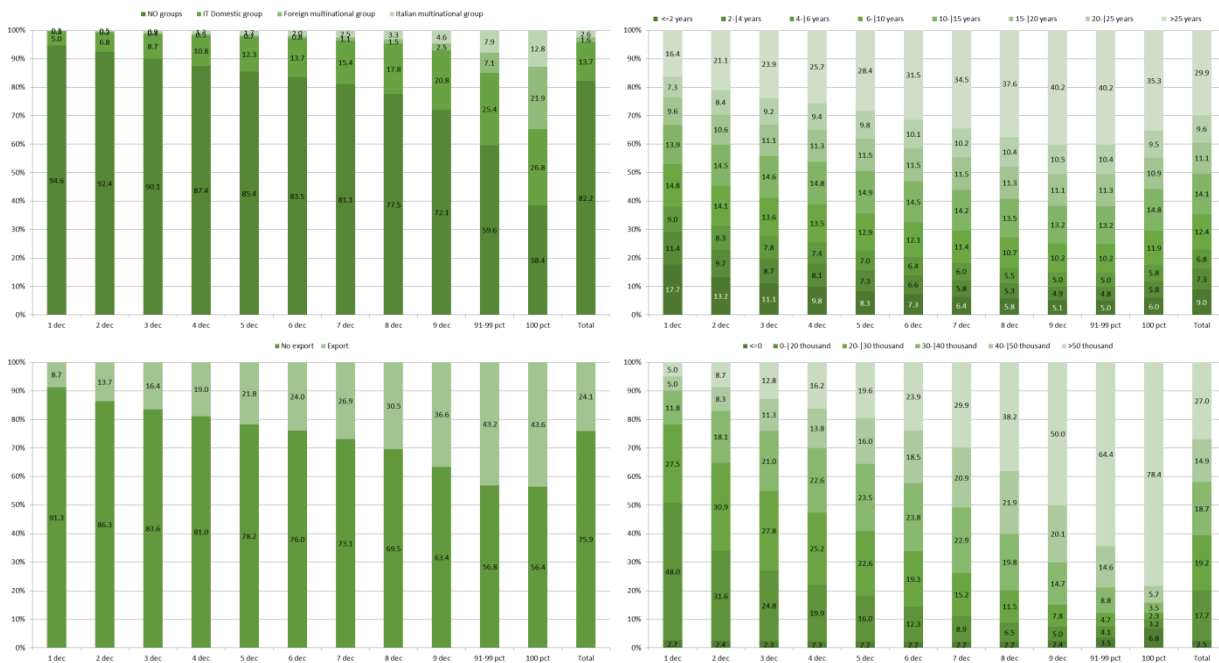
The groups built on the bases of the characteristics of the enterprise, after those obtained by characteristics of the job position, show a smaller within-component of the inequality, even if majority. For the index most sensitive to the low tail, its contribution stands at 60.5% and reaches 78.1% for the GE2 index (Table 4).

TABLE 4 - INEQUALITY INDICES DECOMPOSITION OF GROSS HOURLY WAGES BY ENTERPRISE CHARACTERISTICS. Year 2014

	Mean logarithm deviation (α=0)	Theil (α=1)	GE2 (α=2)
Totale	**0.06316**	**0.08092**	**0.15401**
- Between	*0.02498*	*0.02785*	*0.03374*
- Within	*0.03819*	*0.05307*	*0.12027*

Territory characteristics

On average, Northern companies pay wages higher than those located in the Centre-South (Table 5). Approximately one third of the lowest paid positions are located in Southern Italian enterprises, a share that drops to less than 10% in the last 10th (8% in the top 1%).

TABLE 5 – JOB POSITIONS BY GEOGRAPHICAL AREA, REGION AND TENTH OF GROSS HOURLY WAGES. Year 2014 (percentage values)

	Gross hourly wage deciles									Gross hourly wage percentiles		Total
	1	2	3	4	5	6	7	8	9	91-99	100	
Geographical area and region												
Northwest	**24.7**	**24.7**	**25.5**	**25.9**	**26.9**	**28.8**	**31.0**	**33.8**	**37.7**	**43.3**	**53.0**	**30.3**
Piemonte	6.3	6.6	6.6	6.6	6.7	7.1	7.2	7.4	7.8	7.5	6.5	7.0
Valle d'Aosta/Valleè d'Aoste	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.3
Lombardia	15.7	15.4	16.1	16.6	17.3	19.0	21.0	23.7	27.3	33.1	43.4	20.6
Liguria	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.9	2.5
North East	**18.7**	**19.6**	**22.3**	**23.6**	**25.1**	**26.3**	**28.2**	**29.6**	**31.1**	**30.4**	**22.1**	**25.4**
Bolzano-Bozen	0.8	0.5	0.7	1.0	1.4	1.7	2.1	2.3	2.5	2.6	1.7	1.5
Trento	0.7	0.8	1.1	1.2	1.2	1.2	1.3	1.5	1.4	1.2	0.8	1.2
Veneto	8.6	9.2	10.3	10.7	11.5	11.7	12.4	12.6	12.6	11.6	8.3	11.1
Friuli Venezia Giulia	1.6	1.8	2.1	2.1	2.2	2.4	2.6	2.5	2.5	2.1	1.4	2.2
Emilia Romagna	7.1	7.4	8.2	8.6	8.9	9.2	10.0	10.7	12.2	12.9	9.9	9.5
Centre	**23.5**	**23.2**	**22.3**	**22.2**	**22.0**	**21.4**	**20.4**	**19.4**	**17.9**	**16.9**	**17.1**	**20.9**
Toscana	7.8	7.9	7.6	7.7	7.8	8.0	7.8	7.7	7.5	6.8	5.1	7.7
Umbria	1.8	1.9	1.8	1.8	1.8	1.8	1.7	1.4	1.1	0.8	0.7	1.6
Marche	3.0	3.8	3.6	3.5	3.4	3.4	3.3	2.9	2.6	2.0	1.3	3.1
Lazio	10.9	9.6	9.3	9.2	9.0	8.3	7.7	7.3	6.7	7.2	9.9	8.6
South and Islands	**33.1**	**32.5**	**30.0**	**28.3**	**26.0**	**23.5**	**20.4**	**17.2**	**13.4**	**9.4**	**7.9**	**23.4**
Abruzzo	2.7	2.5	2.2	2.1	2.0	2.0	1.9	1.8	1.4	1.0	0.8	2.0
Molise	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.1	0.1	0.3
Campania	10.1	9.2	8.4	7.7	6.8	6.2	5.4	4.6	3.7	2.7	2.7	6.5
Puglia	7.6	7.6	6.8	6.3	5.6	4.9	4.3	3.5	2.7	1.8	1.4	5.1
Basilicata	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.5	0.4	0.3	0.1	0.7
Calabria	3.2	2.5	2.3	2.2	2.1	1.8	1.4	1.2	0.9	0.5	0.5	1.8
Sicilia	6.1	6.6	6.3	6.3	6.1	5.3	4.4	3.6	2.9	2.0	1.7	5.0
Sardegna	2.1	2.7	2.7	2.6	2.4	2.3	2.0	1.6	1.3	0.9	0.6	2.1

According a regional detail, in Lombardy, Veneto and Emilia Romagna - which in the North represent the regions with the most important percentage of job positions - the share of job positions on the total national positions increases with the increase in the wage level; at the same time, the percentage of positions in companies operating in Lazio, Campania, Puglia and Sicily decreased.

Generally, as the wage level increases, the share of positions in companies based in peripheral, ultra-peripheral and intermediate municipalities tends to decrease, while that of positions in single municipality service provision centre or municipalities in outlying areas increases. In particular, the single municipality service provision centre characterizes the extremes of the distribution, while those of the outlying areas are mainly present in the central part of the distribution (Graf 13).

GRAPH 13 – JOB POSITIONS BY TYPE OF MUNICIPALITY AND TENTH OF GROSS HOURLY WAGES. Year 2014 (percentage values)
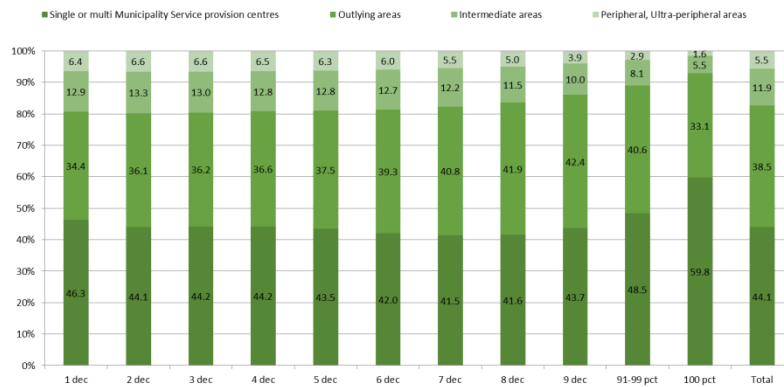
A more productive and competitive economy determines a better performance of the labour market with repercussions also on the level of wages. In Italy, the wage level is directly proportional to the employment rate of the local employment system[8] where the employee carries out his/her work and it is inversely correlated with the unemployment rate, especially the youth unemployment rate, as well as the potential labour force rate.

GRAPH 14 – JOB POSITIONS BY TOTAL AND YOUTH (25-34 YEARS) UNEMPLOYMENT RATE, YOUTH EMPLOYMENT RATE AND POTENTIAL LABOUR FORCE RATE BY TENTH OF GROSS HOURLY WAGES. Year 2014 (percentage values)
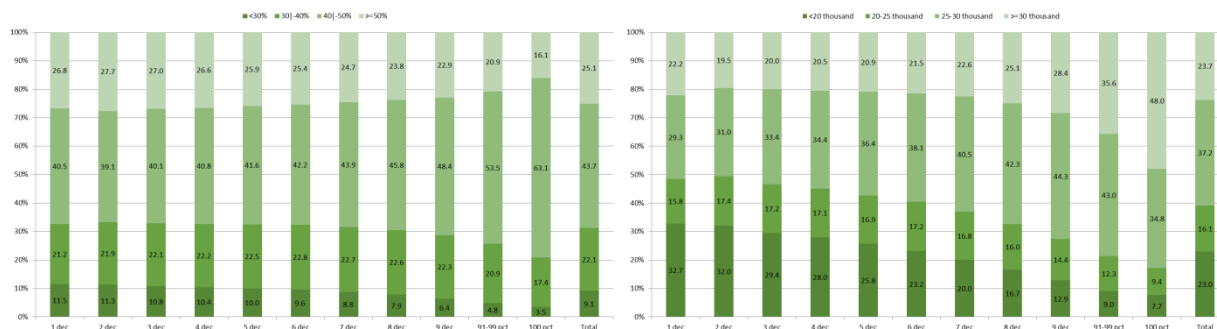

Only 4% of the job positions of the last 10th (and of the top 1%) are included in a local employment system with a high level of unemployment (Graph 15), a share that rises to almost one fifth in the first 10th.

The systems with a high youth employment receive just over half of the lowest-paid job positions, a share that is close to 80% in the last 10th. Finally, 1/3 of the positions with lower salaries are found in systems with high youth unemployment, more than 3 times higher than that observed among the most paid job positions.

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[8] The local labour systems (SLL) represent a territorial grid whose boundaries - independently of the administrative articulation of the territory - are defined using the flows of daily commuting (home/work) identified by the census of the population and housing. In this note the 2011 SLLs are used.

GRAPH 15 – JOB POSITIONS BY SHARE OF DEPENDENT EMPLOYEES ON TOTAL EMPLOYEES IN THE LOCAL EMPLOYMENT SYSTEM AND VALUE ADDED PER INHABITANT IN THE PROVINCE BY TENTH OF GROSS HOURLY WAGES. Year 2014 (percentage values)

Legend (left chart): ■ <30% ■ 30]-40% ■ 40]-50% ■ >=50%
Legend (right chart): ■ <20 thousand ■ 20-25 thousand ■ 25-30 thousand ■ >=30 thousand

The distribution of the job positions according to the share of dependent employees on the total number of employees of the local employment system measures the share of dependent employment in the economic context of reference and how this is associated with the different levels of remuneration. As the wage level increases, there is a reduction in the share of dependent employees below 30%; from 11.5% in the first tenth, the weight of these positions decreased to reach 3.5% in the last percentile (Graph 15). The value added per inhabitant is one of the characteristics of the area in which the company operates most associated with the wage levels, with hourly wages that tend to grow as its value increases. A third of the first-tenth positions work in enterprises that are in the provinces with a value added per inhabitant of less than 20 thousand euros, against a value of less than 10% in the last tenth (Graph 15). When the value added exceeds 30 thousand euros, these values become equal, respectively, to 22.2% and over one third, reaching 48% in the top 1%.

GRAPH 16 – JOB POSITIONS BY NON-OBSERVED ECONOMY RATE IN THE SECTOR OF ECONOMIC ACTIVITY (% OF THE VALUE ADDED) AND RATES OF IRREGULAR WORK IN THE REGION AND IN THE SECTOR OF ECONOMIC ACTIVITY BY TENTH OF GROSS HOURLY WAGES. Year 2014 (percentage values)

Legend (left chart): ■ <5% ■ 5]-10% ■ 10]-25% ■ >=25%
Legend (right chart): ■ <=10% ■ 10-15% ■ >15%
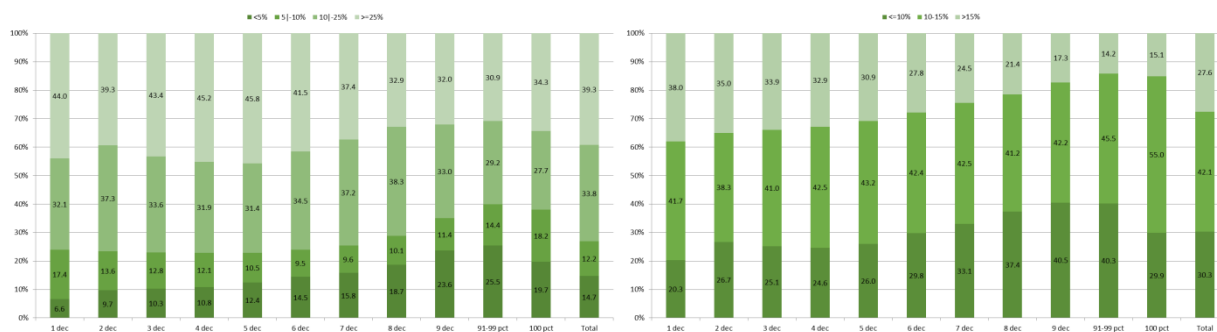
The shadow economy rate, calculated as a percentage of the value added distinctly by sector of economic activity, is a further factor associated with the level of remuneration. The areas and sectors where it is more frequent that some activities are voluntarily concealed from the tax, social security and statistics authorities are, in fact, also a substratum of greater entrepreneurial vulnerability and job insecurity that may be accompanied by lower professional profiles and, in general, poorer remuneration of the labour factor.

The weight of job positions in sectors with the lowest rates of shadow economy (<5%) is growing sharply with tenths, while those referring to higher rates (> =25%) are less present in the last tenths of the distribution (Graph 16).

For analogous reasons, a similar trend is observed with reference to the rates of labour irregularities: as the tenth of the distribution increases, the share of the job positions relative to areas and sectors with a lower level of irregularity tends to increase, while decreases in the presence of high rates of irregularity.

The groups built on the basis of the territorial characteristics are those with the highest within-component: it exceeds 89% for all three indices, reaching 95.2% in the third. The inequality due to the considered characteristics of the territory is therefore particularly reduced (Table 6).

TABLE 6 – INEQUALITY INDICES DECOMPOSITION OF GROSS HOURLY WAGES BY TERRITORY CHARACTERISTICS. Year 2014

	Mean logarithm deviation ($\alpha=0$)	Theil ($\alpha=1$)	GE2 ($\alpha=2$)
Total	**0.06316**	**0.08092**	**0.15401**
- Between	*0.00687*	*0.00708*	*0.00738*
- Within	*0.05630*	*0.07384*	*0.14663*

In summary, the factors most associated with wage inequalities are the characteristics of the job position (professional classification, type of contract, working-time regime and annual contract coverage) followed by the characteristics of the enterprise (productivity, sector, group membership, size, share of dependent employees, export activity and seniority on the market). The effect of the worker's characteristics (gender, age, educational qualifications, citizenship, number of job positions held during the year) and above all of the territory is smaller.

Finally, it should be noted that, although the labour positions of the highest paid tenth have characteristics that are very similar to those of the higher 1%, the employees of the top 100 earn much more than those between the 91st and the 99th percentile.

Inequality between enterprises

As already mentioned, the differences between enterprises explain about half of the overall inequality of hourly wages that concern the dependent employees working in uni-localized companies with less than 50 employees.

Considering the companies ordered in increasing order on the basis of the average wage paid to the dependent employees, it is observed that the enterprises belonging to the lowest 10% pay, on average, 7.02 euros per hour, almost 8 times less than 1% who pays more (54.56 euros); the ratio drops to 5 if the median values are considered.

GRAPH 17 – AVERAGE AND MEDIAN GROSS HOURLY WAGES BY TENTH OF GROSS HOURLY WAGES AND RATIO BETWEEN PERCENTILES FOR ENTERPRISES AND JOB POSITIONS. Year 2014 (euros and percentage values)
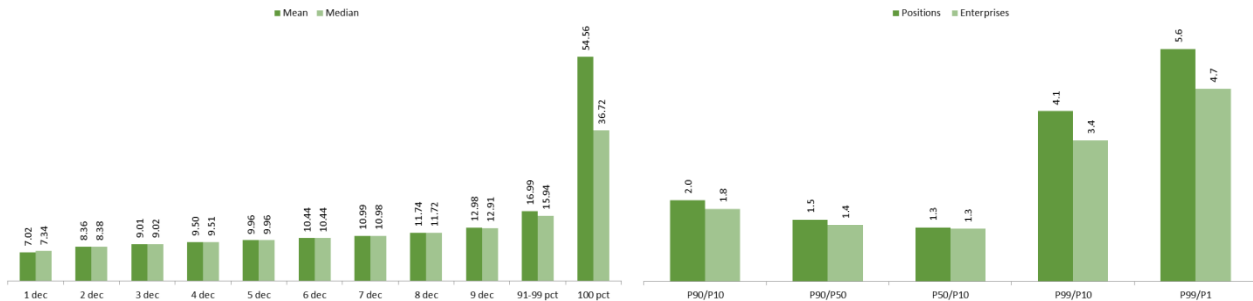
However, wage inequality between enterprises is lower than that observed between job positions (Graph 17), especially when considering the top 1% of distributions; the difference almost disappears if we consider the left tail of the distribution, with values of the p50/p10 ratio that are very similar.

If for each percentile of the distribution, in addition to the average wage, the maximum and minimum are also considered (obtained as the average of the maximum and minimum values of each company belonging to the percentile), the inclination of the central line (referred to the average) provides a measure of wage differentials between enterprises, while the vertical distance between the dotted lines (referred to maximum and minimum) provides an indication of wage differentials within companies (Graph 18).

GRAPH 18 – AVERAGE, MEDIAN, MAXIMUM AND MINIMUM GROSS HOURLY WAGE IN THE ENTERPRISE BY PERCENTILES. Year 2014 (values in euro)
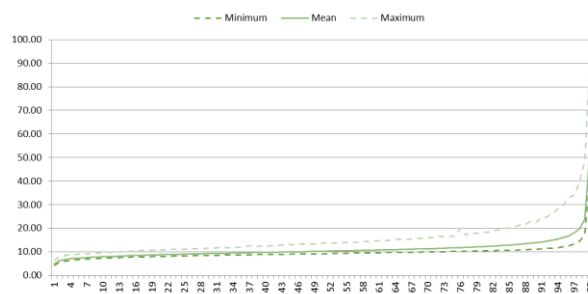
There is a high degree of wage inequality within enterprises that pay the highest average wages; those of the lowest cent pay on average between 4.4 and 6.4 euros per hour, while those of the hundredth highest pay between 43.5 and 92.1 euros. At the fiftieth cent, wages are set at a level ranging from € 9.1 to € 13.4.

Although you can find very well paid individuals even in companies with low average salaries, in general, the higher the average salary in an enterprise, the greater the inequality of wage within it. Moreover, towards the upper end of the distribution, the distance between the lowest and the highest salaries increases at an increasing rate: the ratio between maximum and minimum does not reach 1.5 up to the 43rd cent while it exceeds 2.6 from the 95th cent.

Complementary to the graph 18, the indicators of the graph 19 measure the amplitude and the asymmetry of the range of variation around the average and both increase with the increase of the wage level. Among the companies that on average pay wages up to the 75th percentile, the distance between minimum and maximum is relatively close to the average, while for the high tail of the distribution the range widens strongly due to the progressive removal of the maximum values from the average. In other words, the enterprises that pay the most do not pay high wages to all their dependent employees, but have a wider dispersion and longer queues.

The evidence described above applies regardless of the economic sector and the size of the enterprise: inequality within companies is always higher among those that pay higher average wages (Graphs Appendix).

However, in the areas of water supply, sewage networks, waste management and rehabilitation activities, in the rental sector, travel agencies, business support services and in the arts, sports, and entertainment sectors, the pay gap within companies it is more marked and even more asymmetric for the benefit of maximum wages; it is instead reduced for real estate activities, in the construction sector, other service activities and in health and social assistance, among which the asymmetry is also more contained.

GRAPH 19 – DIFFERENCE BETWEEN MINIMUM AND MAXIMUM VALUES OF GROSS HOURLY WAGES ON THE MEAN (INDICATOR 1) AND DIFFERENCE BETWEEN THE DISTANCE FROM THE AVERAGE OF THE MINIMUM AND MAXIMUM VALUES ON THE MEAN (INDICATOR 2) BY PERCENTILES OF GROSS HOURLY WAGE. Year 2014
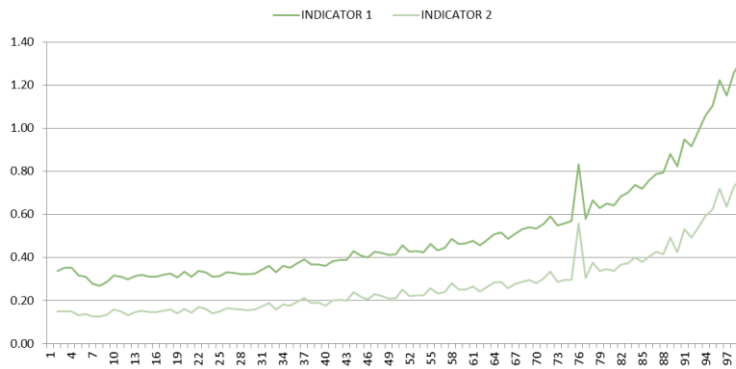
Another way to visualize wage inequality within enterprises is to compare the remuneration of each individual with the wage paid on average by the company in which he/she works (calculated net of his/her wage). In general, job positions with low wages are placed in companies with medium-low remuneration, while dependent employees with high wages are more often found in enterprises that pay high remuneration on average (Graph 20). For example, individuals belonging to the tenth cent work in enterprises that pay on average € 9.40 per hour, while dependent employees who are in the ninetieth cent work in companies that pay on average € 14.52 per hour. Finally, the different slope of the curves indicates that the wage inequality between the job positions is greater than the inequality wages between enterprises.

GRAPH 20 – AVERAGE GROSS HOURLY WAGE FOR JOB POSITIONS AND ENTERPRISES BY PERCENTILES OF GROSS HOURLY WAGE. Year 2014 (values in euro)

In fact, most job positions (up to the 75th percentile) are paid less than the average of the company in which they are placed. In 25% of the positions that, on the contrary, receive wages above the enterprise average, the growth in wages is exponential. The top 1% positions receive about wages 500% higher than those of the fiftieth cents, while the companies in which these same positions are placed pay on average only 200% more than those in the middle of distribution. This shows that a less concentrated average wage distribution results in less overall wage inequality only if it is the consequence of a relatively more favourable treatment for those in the lower part of the distribution.

Professional profiles and main wage level determinants

The inequality of hourly wages of dependent job positions, in uni-localized enterprises with less than 50 employees, is relatively low and the Gini index is 0.185.

By estimating the following linear regression model:

$$\ln(\text{hourly wage}) = \alpha + \beta_i X_i + \varepsilon$$

the variables with a net effect on hourly wage variability (amounting to 27) have been selected (see Part 2 of the Statistical Appendix). They explain 53% of the total variability of the hourly wage logarithm and, in order of importance, are: professional qualification; enterprise productivity (value added per employee); employee tenure in the job position, sex of the employee; age of the employee; business sector (NACE); membership to a group of enterprises; region of the local unit; employee's educational level; enterprise size (number of employees); citizenship of the employee; enterprise share of dependent employees on total employees; type of contract; percentage of part-time; value added per inhabitant in the local unit province; contract coverage in the year; enterprise export activity; employee's number of positions during the year; non-observed economy by economic activity sector; irregular work rate by region and economic activity sector; enterprise seniority; type of local unit municipality; unemployment rate in the "local labour system" of the local unit; share of dependent employees on total employees in the "local labour system"; potential labour force rate, youth unemployment rate (25-34 years) and youth employment rate (25-34 years) by local unit province.

The variable that contributes most to the wage level differentials is the professional qualification and it is also the one presenting the highest *between-group* component of the inequality (ranging between 32% and 39% depending on the considered entropy index).

This result is linked to the fact that 67% of the employment positions in the private sector are classified as blue-collar (with a median wage of 10.5 euros); a further 26% as white-collar (12.2 euros), while 6% is an apprentice (8.4 euros). Both managers and executives represent less than 1% each, with median hourly wages of 27.1 and 51 euros respectively.

The *within-group* component of inequality by professional qualification increases with the increase of the professional profile and indicates how the groups with the highest hourly wages also show a greater variability. The minimum inequality value is recorded among apprentices (0.129 is the value of the Gini index), while the highest among managers (0.274).

If we consider the entropy indices, we can see that the one most sensitive to the left tail (MLD) is 0.0285 among apprentices and rises to 0.1275 among managers; the one most sensitive to the high tail (GE2) varies between 0.0376 (apprentices) and 0.2798 (managers).

By estimating the linear regression model for each professional profile, we observe that for blue-collar and white-collar the most discriminating variable is the enterprise productivity, for apprentices the sector of economic activity, while for executives and managers the membership to a group of enterprises.

The selected variables explain more than 35% of the logarithms of hourly wages variability between apprentices, blue and white collars, while among managers the percentage falls to 20%. Moreover, among managers, the significant variables are "only" 13 against to more than 20 among apprentices, blue-collars and white-collars.

The tables contained in Part 3 of the Statistical Appendix refer to the values of the inequality indices (also decomposed into the *within-group* and *between-group* components) and of the main distribution indices (1st and 10th percentile, first quartile, median, mean, third quartile, 90th and 99th percentile) for all the variables entered in the models estimated for each professional profile.

The indices are also calculated for groups obtained (within each professional profile) by the combination of the most significant variables in determining wage levels.

Below is a brief comment to main results.

Apprentices

The hourly wage inequality for this group of employees is the lowest: the Gini index is 0.129 and the values of the entropy indices vary between 0.0285 and 0.0376; their values increase with the increase of the index sensitivity to the right tail of the distribution, even if to a lesser extent than other professional profiles.

The variable showing the highest share of between-variance is the economic activity sector that, for more than half of these positions, is represented by *Construction, Wholesale and retail trade; repair of motor vehicles and motorcycles (other services) and Accommodation and food service activities* sectors. The highest median wage characterizes the *Electricity, gas, steam and air conditioning supply* sector and the *High-tech professional, scientific and technical activities* (10.1 euros), while the lowest - which are also the lowest ever recorded – are in the *Other services activities* segment (6.1 euros) and in the *Low-tech manufacturing* sector (7.8 euros).

The economic activity sector is followed by the productivity of the enterprise (about two thirds of the positions are in companies with added value per employee below 30 thousand euros), the job position's tenure (62% of employees has a tenure of less than 2 years) and the education level of the employee (37% have at most the lower secondary school and only 10% are graduated, including the first level degree). Considering the groups obtained by crossing the above mentioned variables (5,250 groups, half of the positions are concentrated in 153 groups and 62 contain only one position), the *between-group* component of inequality does not reach 40%, and it varies from 28% to 36% for the index most sensitive to the left tail.

Blue-collar

The hourly wage inequality for this group of positions is relatively low: the Gini index is 0.13 and the entropy indices vary between 0.0296 and 0.0479, indicating, once again, a greater variability among the highest wage levels. Compared to the apprentices, the index most sensitive to the left tail is substantially identical, while the one most sensitive to high salaries values is 1.3 times higher.

Enterprise productivity is the variable with the highest *between-group* component (only a quarter of blue-collars work in companies with added value per employee higher than 40 thousand euros). The median wage is the lowest (9.2 euros) if the company shows an added value per employee positive but lower than 20 thousand euros, while is the highest (12.2 euros) if it exceeds 50 thousand euros. The variables following the productivity are the job position's tenure (for ¾ of positions it is less than 6 years), the sector of economic activity (almost a quarter are employed in *Accommodation and food service activities*, followed by *Construction* and *Wholesale and retail trade; repair of motor*

vehicles and motorcycles) and the age of the employee (almost 80% is under 50 years old). The groups obtained by the combination of these variables, 5,861, show *a between-group* component ranging between 22% and 33%; half of the positions are concentrated in 226 groups and 357 are represented by a single position.

Similarly to apprentices, the minimum median hourly wage is observed for *Other service activities* sector (8.1 euros), while the highest for the *Electricity, gas, steam and air conditioning supply* sector (13.8 euros).

White-collar

In this group of job positions the hourly wage inequality increases and the Gini index is equal to 0.189. The entropy indices vary between 0.0601 and 0.1093, depending on the index, showing a greater level of inequality than the previous two groups. The index most sensitive to the left tail takes a double value compared to that calculated for the positions concerning to blue-collars and the index most sensitive to the right tail is 2.3 times higher (2.9 times if compared to the job positions of the apprentices).

Enterprise productivity is the variable with the highest between-group component: 1/3 of positions concerns companies with added value per employee over 50 thousand euros, whit a median wage (14.2 euros) of about 4 euros higher than that of white-collars in companies with an added value lower than 20 thousand euros (10.4 euros). The successive variables are the t employee's age (about half is under 40 years), sex (almost 2/3 are women) and the region where the local unit is located (more than half of the positions are in Lombardia, Lazio, Veneto and Emilia Romagna). The groups obtained by the combination of these variables are 1,264 (half is concentrated in 126 groups and 2 have only one position) and among them the between-group component of inequality varies between 21% and 34%.

The lowest median hourly wage characterizes the positions in O*ther services* of p*rofessional, scientific and technical activities* (9.8 euros), while the highest is recorded in the sector concerning *Transportation and storage activities for market services with a high knowledge or market content* (19.3 euros).

Executives

In this group of positions, the Gini index grows to 0.224. The inequality indices rises to 0.0826 (the one most sensitive to the left tail) and 0.1454 (the one most sensitive to the right tail). Also in this case the inequality is higher among the highest wage levels and it is about 1.3 times higher than for withe-collar (more than three times than the apprentices).

The membership to a enterprises group is the variable with the highest *between-group* component, which however does not reach 10%; almost 60% of these positions are in enterprises belonging to a group and the highest median wage is recorded among the positions in foreign multinationals (32.3 euros), almost 10 euros higher than that of executives in companies not belonging to groups (22.8 euros).

The dependent employee's sex is the second variable (2/3 are men), followed by the level of enterprise productivity (almost 70% of the positions are in firms with maximum levels of productivity) and the region of the local unit (41% in Lombardia, followed by Emilia Romagna, 12%, and Veneto, 11.3%). There are 755 groups obtained by the combination of these variables (half of the positions are in 22 group and 94 include only one position) and the *between-group* inequality reaches 27% and falls to 14% for the index most sensitive to the high values of the distribution.

The lowest median hourly wage values are observed for young people (less than 17 euros), while the highest pay positions are occupied by foreign employees from North America (45.7 euros).

Managers

These positions show the most accentuated wage inequality: the Gini index reaches 0.274 and entropy indices vary between 0.1275 (the most sensitive to the low values of the distribution) and 0.2798 (the most sensitive to the high values), respectively 1.5 and 1.9 times higher than those calculated for executives (4.5 and 7.4 times those of apprentices).

Similarly to executives, the variable showing the highest *between-group* component of inequality is the membership to a group of enterprises: 70% of the managerial positions are in companies belonging to groups and if it is a group of foreign-controlled multinationals, the average hourly wage (61.2 euros) is more than a third higher than that of managers of non-group companies (45 euros). The second variable is the level of enterprise productivity (¾ are in enterprises with maximum levels of productivity) followed by the added value per inhabitant of the province where the local unit is located (more than half of the managers positions are in provinces with a value added per inhabitant higher than 30 thousand euros); the fourth variable is the dependent employee's age (more than half are 50 years old or older). The intersection of these variables produces 755 groups (half of the positions are concentrated in 15 groups and 29 have only one position) and the *between-group* component is equal to 19% for the index most sensitive to low values and falls to 8% for the one most influenced by the high values.

The lowest wage levels characterize the positions occupied by young people under 30 (30.3 euros), while the highest (about 3 times), similarly to the executives, concern those occupied by foreign dependent employees from North America (89, 5 euros).

Methodological note

ISTAT's traditional information asset is now enriched with important information obtained by the integration of both administrative and statistical data sources. In particular, all the administrative sources on labour market can be linked because each source is LEED (Linked Employer-Employed Data) and it allows to study the joint distribution of the main characteristics of enterprises and employees.

The available information is broad and flexible and, above all, it allows the definition of new aggregates in a statistically coherent way and with great detail. It is also possible to add information for unplanned dimensions of the analysis (for example, information collected from surveys at the level of employer or employees) and to deepen particular relationships or association structures.

In particular, for the present analysis the following sources have been integrated at the micro-data level:

1) the ASIA statistical register and the information system on employment;

2) the RACLI thematic register, extension and part of the aforementioned "information system on employment";

3) the extended Frame-SBS register.

The first register presents a three-level information structure: enterprise, dependent employee and employment relationship.

At the enterprise level, the statistical register of the active enterprises integrates information from both administrative (managed by public institutions or private companies) and statistical sources; it is the main source for business demography, the basis for all ISTAT surveys on enterprises (it identifies the reference population for sampling designs and weighting systems) and it is also used for national accounts estimates.

At the levels of employee and his/her employment contract, the ASIA-Employment database - derived from the DB-Employment and annually updated with the register of active enterprises - allows the construction of different professional profiles and produce extensive and detailed information on demographic characteristics of employees (gender, age, country of birth) and employment relationship.

RACLI is a thematic register on labour market and is an extension of the information system on employment, with reference to wages and labour inputs. It is the main innovation in structural labour cost statistics and is based mainly on social security sources.

Finally, the Extended Frame-SBS is the register of the annual economic data on all active enterprises, based on administrative data integrated with the main surveys on enterprises. This database provides a detailed and multidimensional mapping of enterprises for structural and dynamic analyses.

2014 is the last year for which the data of all these registers are available.

The nature and the information in different registers have forced to restrict the field of observation to the population of dependent employees (excluding the agricultural and insurance-financial sectors), with more than one hour of paid work, in enterprises based in a single municipality with less than 50 employees.

The RACLI register, in fact, includes only job positions in the private sector and excludes agriculture, public administration, domestic sector, international organizations and armed forces. All employees and independent workers of any economic activity do not fall within the field of observation.

To exploit all the available information, the extended FRAME-SBS register was used, where all the active companies (for at least 6 months in the year) are included; in this case, the financial/insurance sector is excluded from the observation field.

Finally, with the aim of analysing the associative structure between wage levels and business characteristics, it was decided to work on unilocalized companies under the hypothesis that these enterprises are those with the strongest links with the territory and their performance and characteristics directly determine the demand for employees and their salaries.

The reference population is represented by all the job positions, that is, by the employment relationships governed by an employment contract between a person and an economic unit.

The unit of analysis used - the job position - is classified by professional qualification (apprentice, blue-collars, white-collars, executive, manager), time schedule (part-time, full -time - distinguishing between these on-call or intermittent work contracts) and type of contract (temporary job - including seasonal - and permanent) - and has to count more than one hour paid by the company, regardless of the continuity in the year. This implies that if a dependent employee has several work contracts with a particular enterprise during the year, they are consolidated and considered as a single job position if the characteristics relating to the professional qualification, the working-time regime and the type of contract do not change. At the same time, any change in at least one of these three variables generates a new job position in the year.

The main variable used in this study, coming from the RACLI register, is the hourly wage obtained as the ratio between the annual gross wage and the number of hours paid during the year.

The gross wage paid by the employer during the year corresponds to the taxable wage and in the used data it is substantially collected according to the cash-flow principle, i.e. when it is actually paid to the employee.

The estimation of paid hours by the employer requires a complex treatment of the information that is present in the administrative sources, since a measure that can immediately be used for statistical purposes is not available. The hours paid by the employer include both the hours worked, ordinary or extraordinary, and hours paid and not worked for holidays, public holidays, illness (paid by the employer), etc.. On the other hand, the hours of unpaid leave, strikes and the absence for which the worker receives only an allowance from the assistance and social security institutions for maternity leave, sickness, accidents, etc. are excluded (for further information see Statistical Report *Differenziali retributivi nel settore privato. Year* 2014, 30 December 2016).

From the RACLI register comes also information regarding the working-time regime, the type of contract, the sector of economic activity and the municipality where the local unit is placed; as far as the worker in the position is concerned, RACLI provides sex and age.

The integration with Asia Occupation has made it possible to integrate information with the contractual qualification, tenure, employment of other positions, citizenship, detailed degree of study of the employee and to classify the different job positions with respect to the share of annual contract coverage.

The information available on the Frame was used to characterize the enterprise in which the position is placed in terms of employees, dependent employees, value added, export value, group membership and seniority of the company.

Finally, the territorial variables were integrated at the level of the local employment system (dependent employees, employed people, unemployment rate), at the provincial level (employment rate and youth unemployment rate, potential labour-force rate, value added per inhabitant), at both regional and sector level (rate of irregularity of the work) or simply at sector level (non-observed economy), depending on the level of detail of the indicator.

GLOSSARY

Dependent job position: is a unit of analysis defined as the employment relationship between an enterprise and a worker with homogeneous characteristics for professional qualification (apprentice, blue collar, white collar, executive, manager), time schedule (part-time and full-time distinguishing between on-call or intermittent contracts) and type of contract (temporary - including seasonal - and permanent), with at least one hour paid by the enterprise.

Educational level: highest degree of education an individual has completed (in public or private, Italian or foreign institutions or even abroad). The level of education is coded according to the international ISCED 2011 classification (International Standard Classification of Education), developed by UNESCO and subsequently adopted by the European Union.

Employee: is a person employed in a legal-economic unit (enterprise, institution), with an independent or dependent job position (full-time, part-time or work-training contract), even if temporarily absent (for service, holidays, illness, suspension from work, wage supplementation fund, etc.).

Employment rate: ratio between the number of employed people and the number of resident people.

Entropy indices: the indices used in this note are all expressed by the following general formula:

$$\frac{1}{\alpha^2 - \alpha} \left[\frac{1}{N} \sum_{i=1}^{N} \left(\frac{y_i}{\bar{y}} \right)^{\alpha} - 1 \right].$$

The difference is represented by the parameter α, which assumes the value of 0 (average logarithmic deviation), of 1 (Theil) and of 2 (GE2). The parameter assigns different weights to different parts of the hourly wages distribution: the higher the value α, the greater the sensitivity of the index to inequality in the highest part of the distribution.

European Union (28): is a political and economic union of the following 28 member states: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Spain, Slovakia, Slovenia, Sweden and the United Kingdom.

Gini index: is a synthetic measure of the degree of inequality in a distribution; its value is 0 when all units have the same amount; on the contrary, it is equal to 1 when the total amount is owned by a single unit.

Hourly wage: ratio between the yearly gross salary and paid hours.

Irregular work rate: ratio between the non-regular work (work performed without compliance with the regulations in force on labour, tax and social security and, therefore, not registered in enterprise, institutions and administrative sources) and the total work (all regular and irregular).

Labour local systems: functional geographic areas beyond the administrative boundaries defined by the flows of the daily home/work trips (commuting) recorded in the Population and Housing Census. Since every labour local system is the place where the population resides and works and where therefore there are most of the social and economic relationships, the home/work trip are used as a proxy of the existing relationships in the territory.

Local unit: is *an* enterprise or part thereof (e.g. a workshop, factory, warehouse, office, mine or depot) situated in a geographically place identified by an address and a house number. At or from this place economic activity is carried out for which - save for certain exceptions - one or more persons work (even if only part-time) for one and the same enterprise.

Municipality type: refers to the municipalities classification based on remoteness level, adopted in the National Strategy for Inner Areas. The municipalities are classified in:

– *Service provision centre*: able to simultaneously provide a full range of essential services (secondary education, health services, railway transport);
– *Multi Municipality service provision centre:* group of neighbouring municipalities able, by a network system, to provide the services mentioned in the previous definition;
– *Outlying:* municipality with the accessibility indicator value (calculated in terms of number of minutes taken to get to the nearest hub) lower than 20 minutes (first tertile of the distribution of the distance in minutes from the nearest hub);
– *Intermediate:* municipality with the accessibility indicator value (calculated in terms of number of minutes taken to get to the nearest hub) between 20 and 40 minutes (first and second tertiles of the distribution of the distance in minutes from the nearest hub);
– *Peripheral:* municipality with the accessibility indicator value (calculated in terms of number of minutes taken to get to the nearest hub) between 40 and 75 minutes (second tertiles and 95th percentile of the distribution of the distance in minutes from the nearest hub);
– *Ultra-peripheral:* municipality with the accessibility indicator value (calculated in terms of number of minutes taken to get to the nearest hub) higher than 75 minutes (95th percentile).

NACE Classification 2007: distinguishes the enterprises/local units according to their activity and groups the various economic activities, from general to particular, in sections (21), divisions (88), groups (272), classes (615), categories (996) and sub-categories (1,224). The NACE Rev. 2, defined within the European context (Regulation EC 1893/2006) derives from the last classification defined by UN (ISIC Rev. 4), which represents the reference classification for the international classifications of economic activities.

Non-observed economy: all the activities voluntarily concealed from tax, social security and statistics authorities. It is generated by false declarations concerning both the turnover or costs of the enterprise/local unit (to generate sub-declaration of value added) and the use of labour input (the employment of irregular work).

Number of employees: defined on the basis of the number of average annual dependent or independent job positions in the ASIA register.

Paid hours: they include the actually worked hours, both ordinary and extraordinary (i.e. outside the ordinary working hours established by labour agreements), and not worked hours paid by the employer as annual leave, public holidays, sickness load of the employer, etc.

Potential labour force rate: ratio between the number of persons who are available to work but don't seek it and who seek work but are not immediately (within two weeks) available to start working and the number of people in the labour force (all employed and searching for job people).

Professional qualification: classification of the job positions based on the International Standard Classification of Occupations (ISCO 08) synthetized into the following categories: managers, executive, white collar, blue collar (including special or intermediate categories) and apprentices.

Tenure: refers to the seniority accrued from the date of entry into current job position.

Unemployment rate: ratio between the number of people searching for job and the number of people in the labour force (all employed and searching for job people).

Value added: aggregate expressing the growth of the economic system in terms of new goods and services made available for final uses. It is defined as the difference between the value of the production of goods and services of a single branch activity or production sector and the value of the consumed intermediate goods and services (raw and auxiliary materials and services provided by other production units). It corresponds to the sum of production factors remuneration and depreciation. It can be calculated at basic prices, producer prices and factors costs.

Yearly gross salary: salaries, earnings and additional paid skills, gross of tax and social security deductions, to be paid by the employer. In this context, the statistics based on RACLI register, it overlaps the taxable remuneration for the purpose of contributions, paid according to the cash principle.

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