



INSTITUTO NACIONAL DE ESTATÍSTICA
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press release

DIÁSTAKE

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GROSS MONTHLY EARNINGS PER EMPLOYEE

(Tax Authority data – Statistics calculated and analysed by Statistics Portugal)

2021

AD-HOC PRESS RELEASE ON THE 88th ANNIVERSARY OF STATISTICS PORTUGAL



THE DISTRIBUTION OF GROSS EARNINGS PER EMPLOYEE IN THE PUBLIC AND PRIVATE SECTORS OF THE ECONOMY

Based on the data from the Monthly Statement of Earnings transmitted by enterprises to the Tax Authority (*Autoridade Tributária*), transmitted monthly to Statistics Portugal, following a protocol celebrated between both entities, Statistics Portugal started publishing new statistics on gross monthly earnings per employee. This information concerns around 4.6 million employees, considering all types of earnings from employment¹ and was integrated with other databases available at Statistics Portugal within the scope of the broader project created by Statistics Portugal called “National Data Infrastructure”, enabling both the socio-demographic characterization of employees and the characterization of the enterprises where they work.

This Press release presents complementary results to those released on 12 April², on the distribution of gross earnings per employee in the public sector and in the private sector of the economy, for the year 2021.

1. Introduction

This Press release presents complementary results to those released on April 12², the date on which Statistics Portugal released new statistics on earnings per employee based on information from the Monthly Statement of Earnings transmitted by enterprises to the Tax Authority, on the distribution of earnings by institutional sector (public sector and private sector) for the year 2021. This information falls within the scope of Statistics Portugal Portal area "StatsLab – Statistics in development".

The analysis by institutional sector was based on the universe of entities that comprise the public sector as defined in the National Accounts³, the private sector being defined by difference. Were excluded from the analysis the employees who worked in both institutional sectors during 2021, corresponding to approximately 80 thousand employees (1.7% of the total of 4.6 million unique employees). Thus, the employees in the public sector and in the

¹ For the purposes of this Press release, the concepts of earnings and income are considered synonymous. All types of earnings (taxable; exempt from taxation but subject to declaration; not subject to taxation) and from all social protection regimes (including the different Social Security Funds, Social Security and Caixa Geral de Aposentações) are considered.

² StatsLab Press release “[Statistics Portugal publishes new statistics on gross monthly earnings per employee based on information from the Tax Authority - 2019 - 2021](#)”.

³ The universe of entities that compose the institutional sector of the Public Administration is subject to updates twice a year.



private sector here analysed correspond to individuals who worked exclusively in a one institutional sector (740.9 thousand employees in the public sector and 3,799.6 thousand employees in the private sector).

2. The distribution of gross monthly earnings per employee by institutional sector

Although the limited exercise of comparing the average earnings per employee between certain population groups, given the lack of control for all the dimensions of heterogeneity existing within each of these groups under comparison, which would only be possible by using wage equations and econometric models, it is nevertheless interesting to point out differences according to some of these characteristics of the employees for which Statistics Portugal has information within the scope of the “National Data Infrastructure” (sex, age group, level of education completed and NUTS 2 region).

In 2021, the average monthly gross earnings per employee⁴ was higher in the public sector than in the private sector (€2,019 vs. €1,335; 51.2% more). This result reflects, as mentioned and among other factors, differences in the type of work performed and in the qualifications of the employees who integrate them. In fact, it can be seen, for example, that employees in the public sector have, on average, higher levels of education: 55.2% of employees in this sector had tertiary education (22.7% in the private sector), 26.6% had completed upper secondary or post-secondary non-tertiary education (32.4% in the private sector) and 18.3% had a level of education corresponding at most to lower secondary education (44.9% in the private sector).⁵

Figure 1 shows the distribution of gross monthly earnings per employee according to the institutional sector. In both sectors the distributions are positive skewed (median below the average), and both sectors have the same mode range (€850 to €900€). However, the public sector differs from the private sector in earnings dispersion. In the private sector, earnings are concentrated around the mode and the median, with the median earnings in 2021 standing at €996. In the public sector, there is also some concentration of employees around the mode (between €850 and €900), but the median corresponded to €1,778, and there was also a concentration of workers between the median and € 2,450. Similarly, the interquartile range (IQR) is also lower in the private sector (€672) than in

⁴ The earnings values account for all components received in all jobs, not just the base salary of the main job. That is, in the case of employees with more than one job, the total income from all jobs is added up. For each employee, the total income (before taxes) received in the year was added and divided by the total number of months worked.

⁵ These results are the most recent at the date of disclosure of this Press Release. For the public sector, we mention the data released by the Directorate General for Administration and Public Employment (DGAEP), whose coverage is close to the public sector defined here, referring to 30 June 2022 and covering the entire country. For the private sector, the percentages were calculated based on Table 36 of the “Lists of Personnel 2021 (Annex A) from “Relatório Único” report, made available by the Strategy and Planning Office of the Ministry of Labour, Solidarity and Social Security. The data of this report relate to October 2021 and cover Mainland Portugal.



the public sector (€1,511⁶), ranging from €800 (25th percentile; P25⁷) and €1,472 (75th percentile; P75⁸) in the private sector, and between €1,028 and €2,539 in the public sector.

3. The distribution of gross monthly earnings per employee according to some individual characteristics

By level of education, earnings differences are observed between the two institutional sectors. In 2021, the gross monthly earnings per employee in the public sector who completed at most the lower secondary education was €1,265, €151 more (13.6%) than in the private sector (€1,114), with this differential being higher at the top of the distribution (€540 in the P90; 30.4%). Among those with upper secondary or post-secondary non tertiary education, the gross monthly earnings per employee in the public sector was higher by €166 (12.3%) than in the private sector (€1,514 vs. €1,348), with the largest differential in the 80th percentile of the distribution (€506; 30.3%).

On average, for employees with tertiary education, for whom higher earnings were observed, there was a greater difference between the public sector (€2,957) and the private sector (€2,263), reaching almost €700 (30.7%). However, if we observe the relative differences between employees along the earnings distribution (Figure 4 and Table 2), it is observed that for employees with tertiary education, the difference is stable around 70% at the base of the distribution (P10 to P30) and then it decreases. At the top of the distribution (P95), the differential is only 180€ (3.3%).

This result may be associated, among other factors, with the different age composition of workers in the public sector and in the private sector, with the first group presenting a higher average age of workers, including those with complete tertiary education (Table 2). This is associated by greater accumulation of human capital and professional experience, which impacts the income of employees.

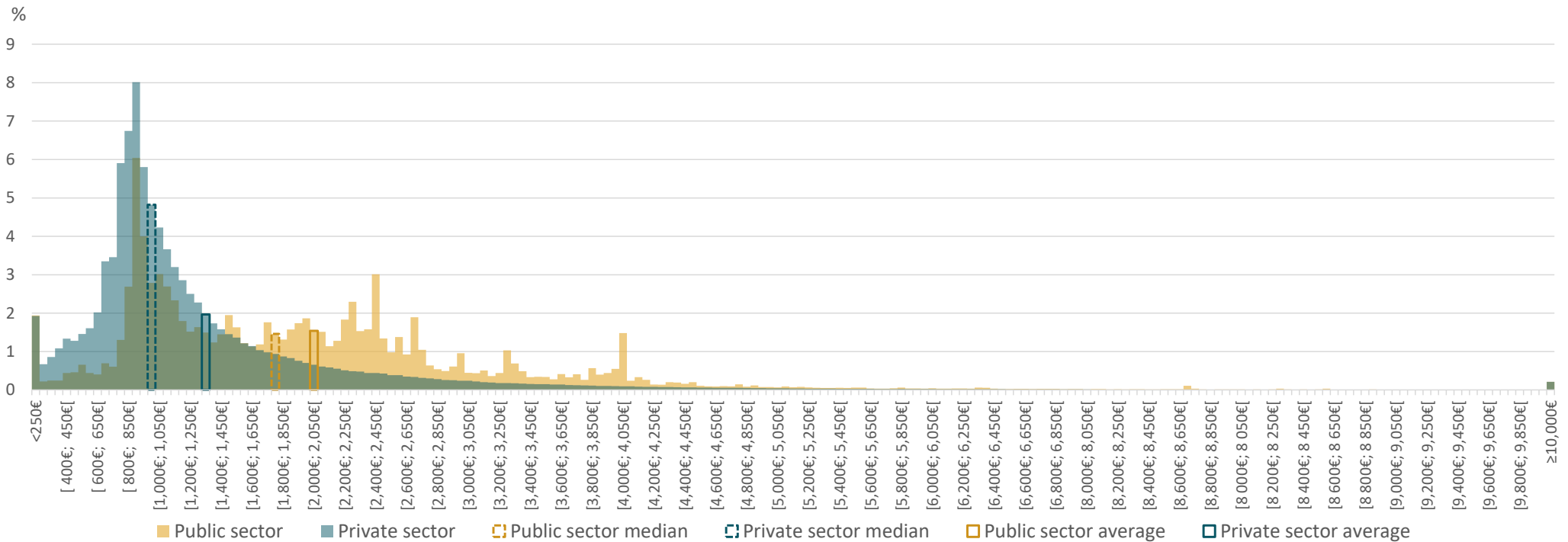
⁶ Dispersion measure of 50% of the distribution around the median, that is, the distance between the first quartile (equivalent to the 25th percentile) and the third quartile (75th percentile).

⁷ 25% of lowest-income employees in the private sector earn up to €800, the 25th percentile.

⁸ 25% of the highest-income employees in the private sector earn at least €1,472, the 75th percentile.



Figure 1. Distribution of the gross monthly earnings per employee by institutional sector



GROSS MONTHLY EARNINGS PER EMPLOYEE – 2021



Figure 2. Moments of the distribution of the gross monthly earnings per employee with lower secondary education (at most) by institutional sector

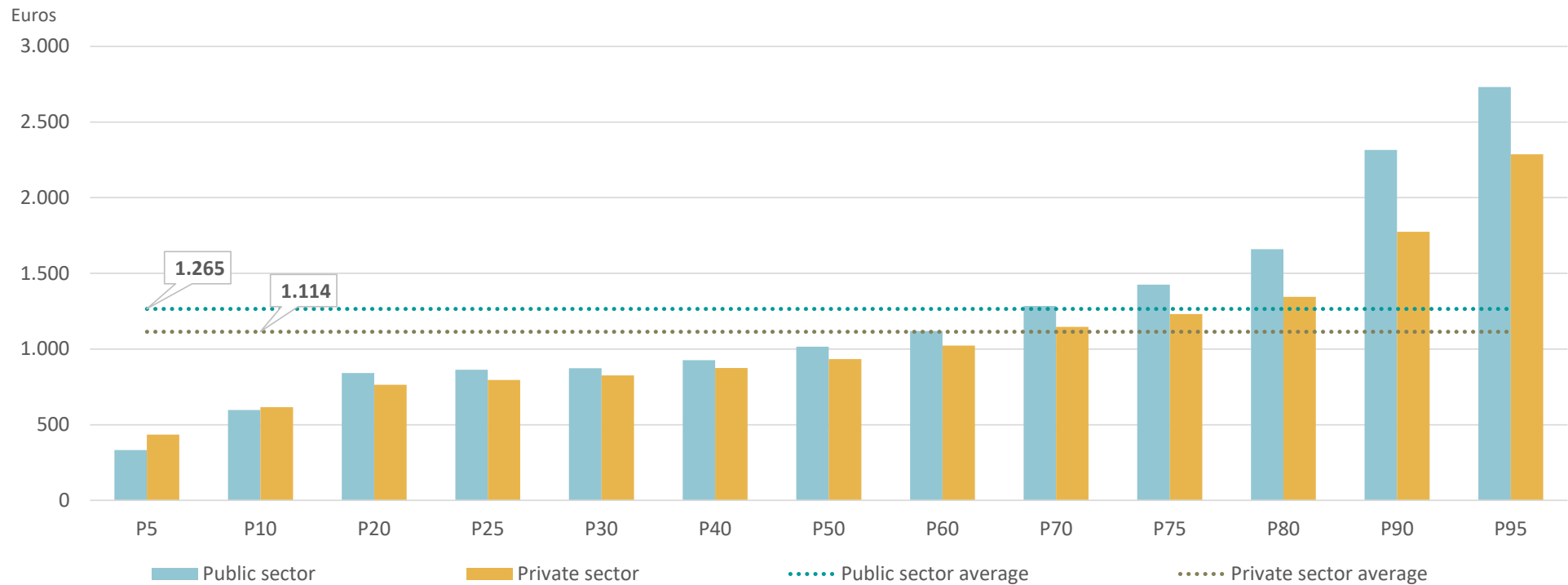




Figure 3. Moments of the distribution of the gross monthly earnings per employee with upper secondary and post-secondary non-tertiary education by institutional sector

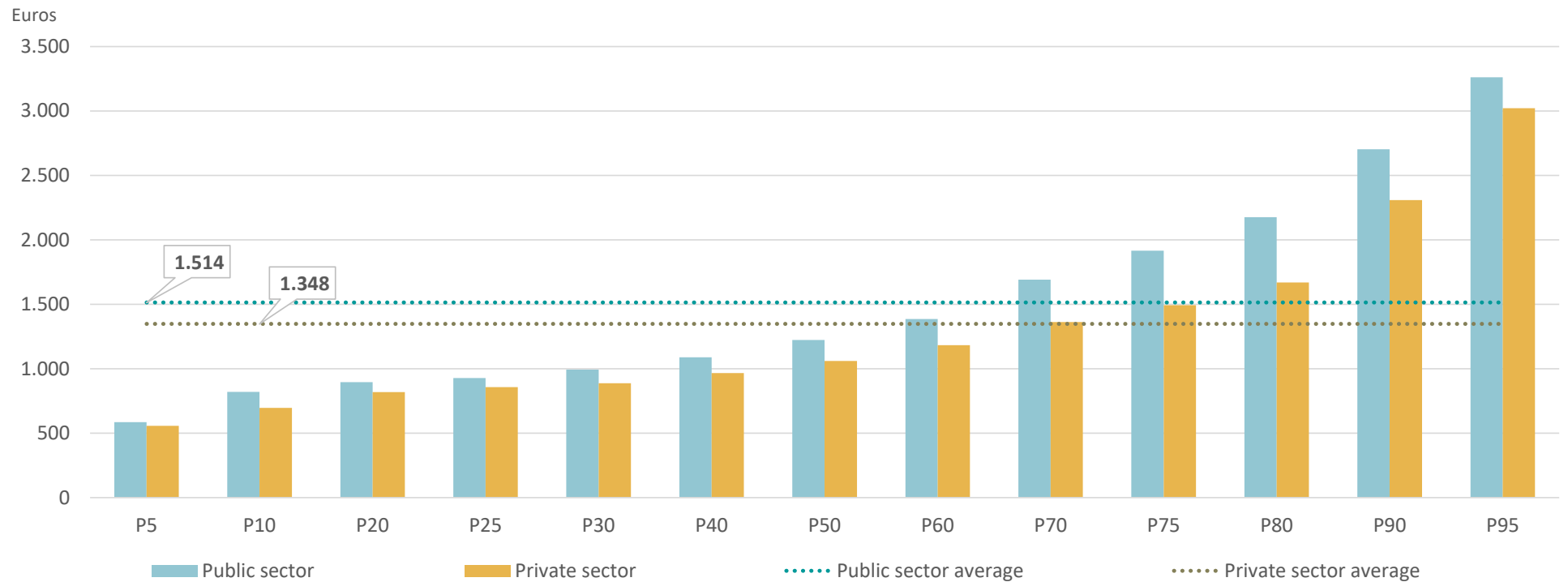




Figure 4. Moments of the distribution of the gross monthly earnings per employee with tertiary education by institutional sector

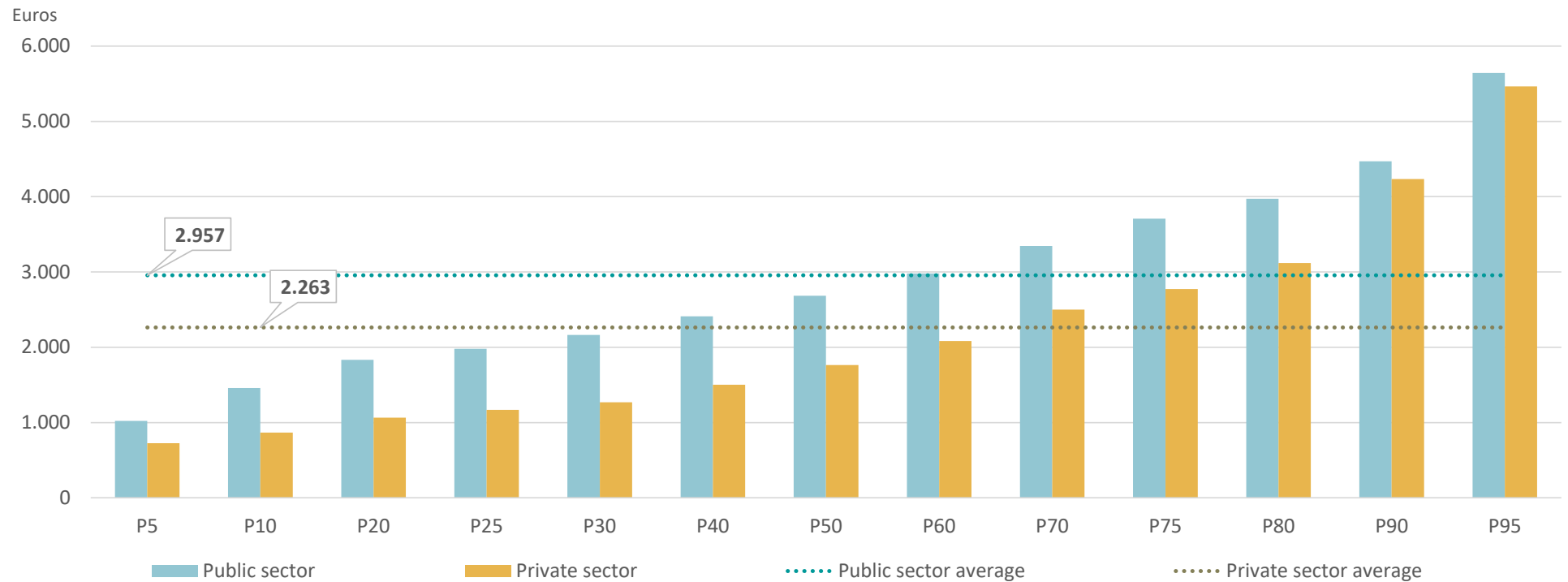




Table 1. Moments of distribution of gross monthly earnings per employee by institutional sector

Year	Percentile													Average	Number of employees	
	P5 ^a	P10	P20	P25	P30	P40	P50	P60	P70	P75	P80	P90	P95		Thousands	% ^b
2021	Euro															
Public sector	644	845	942	1.028	1.126	1.437	1.778	2.092	2.402	2.539	2.726	3.677	4.182	2.019	740,9	100,0
Men	543	855	987	1.071	1.177	1.498	1.868	2.152	2.407	2.557	2.757	3.734	4.407	2.074	291,2	39,3
Women	696	843	915	1.006	1.092	1.399	1.735	2.049	2.399	2.521	2.704	3.632	4.056	1.983	446,7	60,3
Up to 24 years old	245	349	552	689	794	884	960	1.034	1.123	1.186	1.298	1.756	1.981	996	18,6	2,5
25 to 34	479	717	905	990	1.095	1.385	1.572	1.789	1.958	2.034	2.164	2.679	3.378	1.672	74,3	10,0
35 to 44	676	842	957	1.048	1.172	1.494	1.722	1.904	2.089	2.219	2.319	2.944	3.791	1.838	155,5	21,0
45 to 54	784	865	998	1.083	1.213	1.615	1.991	2.271	2.410	2.490	2.644	3.342	3.980	2.042	231,6	31,3
55 to 64	788	863	958	1.039	1.132	1.402	1.987	2.446	2.812	3.065	3.286	4.027	4.497	2.246	220,5	29,8
65 to 74	205	759	901	965	1.052	1.287	1.711	2.565	3.502	3.897	4.026	4.942	6.586	2.525	36,7	5,0
Lower secondary education (at most)	333	597	842	863	873	926	1.016	1.119	1.285	1.426	1.660	2.315	2.731	1.265	149,1	20,1
Upper secondary and post-secondary non-tertiary education	586	820	896	928	994	1.089	1.224	1.386	1.691	1.917	2.176	2.703	3.261	1.514	96,9	13,1
Tertiary education	1.023	1.458	1.832	1.978	2.162	2.410	2.683	2.980	3.346	3.707	3.971	4.471	5.644	2.957	199,1	26,9
Private sector	421	594	760	800	839	902	996	1.127	1.323	1.472	1.672	2.404	3.255	1.335	3.799,6	100,0
Man	517	670	818	863	897	999	1.125	1.286	1.531	1.707	1.933	2.743	3.695	1.512	1.919,9	50,5
Woman	388	551	735	776	811	865	927	1.018	1.160	1.271	1.434	2.050	2.764	1.186	1.637,4	43,1
Up to 24 years old	245	367	522	587	646	742	814	871	936	980	1.035	1.227	1.469	823	323,4	8,5
25 to 34	499	655	786	827	861	929	1.018	1.130	1.287	1.398	1.545	2.045	2.603	1.227	788,5	20,8
35 to 44	548	700	819	856	889	982	1.104	1.266	1.505	1.674	1.887	2.620	3.479	1.458	910,3	24,0
45 to 54	522	682	809	845	875	954	1.074	1.245	1.516	1.715	1.973	2.834	3.841	1.516	898,1	23,6
55 to 64	438	639	776	814	848	905	1.000	1.140	1.362	1.534	1.777	2.684	3.755	1.442	548,2	14,4
65 to 74	248	394	663	721	776	868	959	1.110	1.361	1.556	1.849	2.959	4.297	1.480	81,3	2,1
Lower secondary education (at most)	435	616	764	796	826	875	933	1.022	1.146	1.231	1.345	1.775	2.287	1.114	1.537,0	40,5
Upper secondary and post-secondary non-tertiary education	558	697	819	857	888	967	1.061	1.183	1.362	1.494	1.670	2.308	3.021	1.348	937,8	24,7
Tertiary education	725	865	1.064	1.167	1.270	1.501	1.765	2.083	2.500	2.774	3.119	4.234	5.464	2.263	614,0	16,2

Notes:

a: the value of the 5th percentile may be particularly influenced by the presence of part-time employees.

b: the sum per dimension (gender, age group, education level and NUTS 2) corresponds to the coverage rate of the dimension and may be less than 100%.



Table 2. Average age of employees by level of education completed and institutional sector

Year	Institutional sector	
	Public	Private
2021		
Total^a	53	43
Lower secondary education (at most)	54	46
Upper secondary and post-secondary non-tertiary education	52	39
Tertiary education	53	40

Note:

a: computation conditional on individuals with available information for age.



TECHNICAL NOTE

"The statistics on ""Gross monthly earnings per employee"" published in this Press release are based on information from the Monthly Statement of Earnings transmitted by firms to the Tax Authority (DMR-AT), obtained for statistical purposes under a protocol signed between the Statistics Portugal - as the national statistical authority, central body for the production and dissemination of official statistics - and that entity, and fall within the StatsLab Portal area, intended to present statistics under development. ([StatsLab Portal](#))

The gross monthly earnings per employee corresponds to the average value of the gross monthly earnings (i.e. before tax) received per employee per year, considering the totality of earnings received in that year from all jobs.

The data from the Tax Authority (AT) correspond, essentially, to employees. It should be noted that, for the total, no restriction was placed on the age of employees, but that it is not possible to analyse the age group of those aged 75 and over, due to their heterogeneity and lower participation in the labour market.

The analysis by institutional sector was based on the universe of entities that comprise the public sector as defined in the National Accounts, the private sector being defined by difference. Were excluded from the analysis the employees who worked in both institutional sectors during 2021, corresponding to approximately 80 thousand employees (1.7% of the total of 4.6 million unique employees). Thus, the employees in the public sector and in the private sector here analysed correspond to individuals who worked exclusively in a single institutional sector (740.9 thousand employees in the public sector and 3,799.6 thousand employees in the private sector).

The data received from the AT were integrated with other databases available at Statistics Portugal as part of the wider project the build of a National Data Infrastructure at Statistics Portugal, thus enabling the socio-demographic characterisation of the employees. The number of employees considered in each dimension is shown in this file, sheet Table 1, and the corresponding coverage rates in relation to the total number of employees in the database are shown in Table A below.

Quadro A. Coverage rate of the variables characterising individuals by institutional sector

Portugal	Public sector	Private sector
	%	
Total	740.9	3,799.6
Sex	99.6	93.6
Age group	99.6	93.6
Level of education completed	60.1	81.3
NUTS II	97.2	88.4

Due to rounding, the totals in tables and figures do not always match the sum of parts.



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DIÍSTAQUE

SOME CONCEPTS

Gross monthly earnings: monthly remuneration earned before taxes that corresponds to the sum of all earnings components by the employee, namely base salary, meal allowance, seniority payments, bonuses, and all other components.

Earnings percentiles: regular cut-off points of a cumulative distribution, which divide the ordered data into 100 subsets of data of equal size.

Employee: person who carries out an activity under the authority and direction of another under the terms of an employment contract, whether or not subject to written form, which entitles him/her to a remuneration that does not depend on the results of the economic unit for which he/she works.