
THE WAGES SYSTEM IN ROMANIA – BETWEEN CONVERGENCE AND DISCRIMINATION. SUSTAINABILITY OR OVER-REGULATION?

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Abstract: *The wages system in Romania is a subject of great importance. Although, apparently, the situation on the labour market has improved during the last years, compared to the member countries of the European Union there are many problems in Romania, due to an inadequate structure in the national economy, the way in which privatization and economy restructuring were performed, the mass emigration labour market, which have generated imbalances between labour supply and demand. The paper aims at highlighting the changes in the salary system in Romania in the period of post-accession to the European Union. An analysis was conducted, the official statistical data on the evolution of the average net monthly salary were detailed, differentiated by size classes of economic agents, by gender and by sectors of the national economy.*

Keywords: *labour market, discrimination, wages, public sector, private sector*

JEL Classification: *E24, E64, J31, J45, J71*

1. Introduction

The transition to the market economy of the former socialist economies and the European economic integration have triggered important transformations in the labour market, which have accentuated or diminished its discrimination and vulnerabilities. The issue of the sustainability of an economic system automatically implies the trend towards balance of the labour market from the perspective of demand, supply and salary level.

According to literature, "macroeconomic stability is characterized by improving business conditions" (Belas et al., 2020). On the other hand, the labour market can be seen as a system that has as input the demand and supply of labour and as outputs the income generated for employees and implicitly the expenses borne by employers. The feedback relationship between these elements can generate the system sustainability or, on the contrary, major imbalances on the labour market, such as unemployment (Pauhofova and Stehlikova, 2018) and underemployment.

The labour market reveals the processes and laws that ensure the demand and supply of labour, the mechanisms and operations underlying employment and efficient use thereof (Minică, 2004).

According to the neoclassical model, Dornbusch and Fisher (1990) highlight the conditions for achieving equilibrium in the labour market from the perspective of a microeconomic analysis. Companies will not require hours of work if there is no market demand for the goods and services offered. The labour demand is determined by the level of marginal labour productivity which is a decreasing quantity. All active and fit people make a choice between work and rest (non-work). The decision to work depends on two effects: income and substitution.

2. Conceptual framework

As per the analysis conducted by Santos and Sequeira (2013), the level of the average wages (Marek, 2019) differs between the branches of activity, in industry there is an average hourly cost between 27.4 and 33.2 euros, while in construction it varies between 25 and 27.6 euros, and in services between 27 and 29.6 euros. The share of social contributions of employees in the total cost of labour is 23.7% on the average in the European Union. The pay gap between women and men is also due to the fact that 31.7% of employed women work part-time, while the European average of men employed in this system reaches only 8.8%.

Vacas-Soriano, Fernández-Marcias and Muños de Bustillo (2019) identify the fact that “mainstream theories” (also mentioned by Privarova, 2007) of economic growth (Ucak, 2012) predict a process of convergence as a result of the European economic integration. According to the theory of Heckscher-Ohlin, countries will specialize in those activities that efficiently capitalize on their resources, and the Stolper-Samuelson theory predicts that there will be a simultaneous process of convergence between countries in the price of production factors (labour and capital). The literature provides empirical evidence highlighting convergence between different groups of countries, known as convergence clubs (Baumol and Wolf, 1988), for countries with similar social institutions, economic reality and geographical positioning, and in particular for the European Union (Sachs and Warner, 1996). According to Radlinska et al, “global crises result in difficulties on the European labor markets” (Radlinska et. al, 2020).

The evolution of revenues is pro-cyclical and in conditions of recession their convergence process is distorted, especially due to the strong impact it had on countries with a low level of economic development (Chirinko, 1980; Brandolini, 2007).

Over time, due to the so-called model of social convergence, the differences between countries in terms of income have decreased (Clark, 2013) for the following reasons: modernization and standardization of institutions as a result of economic development (Meyer et al. 1997), the limits imposed by the structural variations of society by establishing a common division of labour (Levy, 1966); the influence of globalization in terms of technology (Bhalla, 2002), common policies and benchmarking applied to the European Union (Torfason and Ingram, 2010).

The gender of the employee has a negative effect in all countries, the consequence being that, on the level of the European Union, in 2017, women earned 16.2% less than men in terms of gross hourly income. The most important differences are registered in Estonia (25.3%), the Czech Republic (28.1%), Germany (21.5%). On the other hand, the smallest differences between the gains obtained by men and women were registered in Romania (5.2%), Italy (5.3%), Luxembourg (5.5%) and Belgium (6.1 %). Literature addresses this issue in terms of gender discrimination (Hedija and Musil, 2020; Gori et al, 2018; Macarie and Moldovan, 2012). Some of these income disparities can be explained by the individual characteristics of male and female employees (experience and education) and part of the gender segregation of the occupational sector (Rakauskiene and Chlivickas, 2007), the income gap (Zeman, 2019; Şandor et al, 2011) having a connection with cultural, legislative, social and economic factors, behind pay differences for the same work.

In 2018, on the level of the EU member states, the average hourly labour cost ranged from 5.4 euros to 43.5 euros, the lowest levels being recorded in Bulgaria and Romania, and the highest in Denmark, Luxembourg and Belgium, according to the following graph:

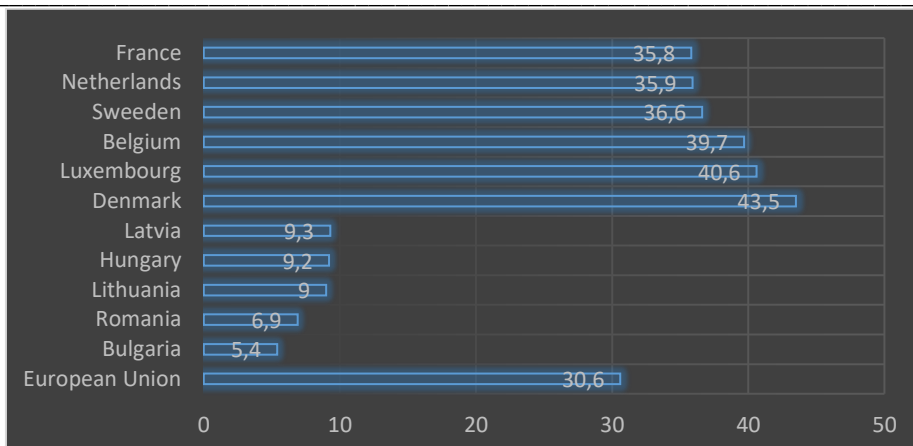


Figure 1: Average wage cost in several EU countries (euro)

Source: elaborated by the authors, according to Eurostat information

Budria and Moro-Egido (2014) state that the phenomenon of overqualification may reflect a “significant mismatch between the real potential of employees and the productivity limit at work”. Hitka et al. (2018) mention flexibility related to family as a reason of discrimination of women at workplace, while Vargic and Luptakova (2003) consider “building and supporting the existence of informal relationships” as being a positive aspect.

Due to the impact of the free movement of labour, on the European market and including in Romania, some vulnerabilities are created for certain categories of workers, especially for those with a low level of education (Gottvald et al, 2013). The importance of education is highlighted in literature (Vaiciukeviciute et al, 2019). According to Eurostat data, the number of workers with higher education in the EU Member States of the European Union in the period 2008-2015 increased by 13 million workers, while the number of those with secondary education decreased by 7.4 million. The high share of people with lower education is a major vulnerability of the labour market, especially in the economic crisis, and lifelong learning, which could reduce the effects of this situation, is formal, with no real impact on the level of training. Although many companies offer various courses and trainings in order to develop skills specific to the field of activity, they are financed from the companies' own resources, being an extra-salary cost of labour, which can put pressure on the salary fund and condition the employee to stay a certain period at the respective workplace, in the opposite situation, having to pay the equivalent value of these trainings. The most worrying phenomenon on the labour market in Romania, however, remains the decrease in labour supply, due to the massive international migration in recent years. Thus, according to the data of the National Institute of Statistics, 2.069 million people changed their usual residence, between 2008 and 2017, amid a decrease in the resident population, from 20.64 million in 2008 to 19.52 million in 2018.

3. Empirical analysis

3.1. Research methodology

The case study analyses the official statistical data (from the Statistical Yearbook of Romania), registered for the period 2008 - 2017 (the post-accession period of Romania to the European Union).

The general objective of the study is to highlight the evolution of wage differences in the public and private sector, depending on the order of size of enterprises, by number of employees and by gender (male / female).

Hypothesis 1 – Wage incomes in public enterprises are higher than those in the private sector, the gaps widening over time.

Hypothesis 2 – Due to economies of scale and productivity increases, wages in large enterprises (over 250 employees) are higher than in SMEs. Wage differences at the level of large enterprises are insignificant between the public and private sectors.

Hypothesis 3 – Gender discrimination from the perspective of salary income is registered in the case of all types of enterprises.

Hypothesis 4 – The economic dimension of sustainability is determined by a priority contribution of the private sector to the generation of surplus value, and therefore a primary distribution of revenues with priority to this sector.

In order to reach the proposed objectives and to test the hypotheses of the study, data from official statistics were used, regarding the level of net earnings obtained by employees in Romania, respectively the number of employees in Romanian enterprises. The data were collected from the 2009-2019 editions of the Statistical Yearbook of Romania, for the time interval of one decade, mentioned above, being centralized in the form of time series, using for their processing the statistical software. The analysis was performed for each category of enterprises, organized according to the following criteria:

- C1 – size (less than 50 employees, 50-249 employees and over 250 employees);
- C2 – type of sector: public and private;
- C3 – gender of employees (male and female).

For the correlation analysis of these data we proceeded to study the evolution over time, following a comparison between the categories of enterprises according to the above criteria, testing the research hypotheses using a simple unifactorial regression model, in order to establish the link between the two mentioned indicators. A time series represents a sequence of values recorded by a specific random variable in a time interval, being analysed the frequency of the series, therefore the periodicity with which the variable is observed. In this case, the frequency is annual. For the in-depth study of the evolution of the aforementioned indicators, one can analyse the oscillation over time of the values, through graphical representations, comparing successively the levels of two consecutive years. In order to verify the validity of the data used, as well as the level of representativeness, various statistical tests were taken into account, the results obtained being interpreted in the content of the present case study.

3.2. Data analysis

The input data used in the study were centralized in the following tables:

Table 1: Average monthly net nominal earnings, by size classes of enterprises and gender

			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
General	Under 50 employees	Lei	843	844	903	957	960	973	1083	1235	1362	1602
		eu ro	228.90	199.18	214.49	225.82	215.44	220.19	243.67	277.84	303.29	350.69
	50 – 249 employees	Lei	1217	1294	1354	1380	1439	1512	1617	1799	2057	2355
		eu ro	330.46	305.38	321.62	325.63	322.94	342.16	363.81	404.72	458.05	515.53
	Over 250 employees	lei	1644	1735	1711	1759	1854	1988	2130	2296	2519	2873

	es	<i>eu</i>	446. 41	409. 46	406. 42	415. 06	416. 07	449. 88	479. 23	516. 54	560. 93	628. 93
Female	Under 50 employees	lei	106 7	107 5	117 0	123 3	125 9	129 7	145 4	161 4	179 2	214 8
		<i>eu</i>	289. 73	253. 70	277. 91	290. 95	282. 54	293. 51	327. 14	363. 10	399. 04	470. 22
	50 – 249 employees	lei	157 9	168 6	174 2	178 6	189 7	200 5	215 1	241 1	272 3	317 1
		<i>eu</i>	428. 76	397. 90	413. 88	421. 44	425. 72	453. 72	483. 96	542. 41	606. 35	694. 16
	Over 250 employees	lei	209 3	221 4	214 5	219 1	232 2	250 2	268 7	292 7	322 5	375 0
		<i>eu</i>	568. 33	522. 50	509. 51	517. 00	521. 10	566. 19	604. 55	658. 49	718. 13	820. 91
Male	Under 50 employees	lei	116 7	118 3	127 2	136 3	133 7	134 4	149 8	174 9	191 6	223 4
		<i>eu</i>	316. 89	279. 19	302. 14	321. 62	300. 04	304. 14	337. 04	393. 48	426. 65	489. 04
	50 – 249 employees	lei	166 4	179 2	192 4	195 8	201 2	211 1	226 5	251 0	288 7	325 7
		<i>eu</i>	451. 84	422. 91	457. 02	462. 02	451. 52	477. 71	509. 61	564. 68	642. 87	712. 99
	Over 250 employees	lei	235 2	251 4	255 9	265 0	278 7	297 7	318 2	341 7	373 2	420 3
		<i>eu</i>	638. 66	593. 30	607. 85	625. 31	625. 45	673. 68	715. 92	768. 73	831. 03	920. 08

Source: authors' processing, apud the information from Romania's Statistic Yearbook, 2018

With regard to the average monthly net nominal earnings, there is a steady increase, but not equal between two consecutive years, in all categories of wages, highlighting the differences in income between the category of small and medium enterprises and those with more than 250 employees. The ratio between the level of net female and male nominal earnings highlights the lack of homogeneity over time and by size classes of enterprises.

Table 2: Differences and salary ratio male - female

Year	Male - female salary differences						Female - male salary ratio (%)		
	Under 50 employees		50 – 249 employees		Over 250 employees		Under 50 employees	50 – 249 employees	Over 250 employees
	lei	euro	Lei	euro	Lei	Euro			
2008	100	27.15	85	23.08	259	70.33	0.9143	0.9489	0.8899
2009	108	25.49	106	25.02	300	70.80	0.9087	0.9408	0.8807
2010	102	24.23	182	43.23	414	98.34	0.9198	0.9054	0.8382
2011	130	30.68	172	40.59	459	108.31	0.9046	0.9122	0.8268
2012	78	17.50	115	25.81	465	104.35	0.9417	0.9428	0.8332
2013	47	10.64	106	23.99	475	107.49	0.9650	0.9498	0.8404
2014	44	9.90	114	25.65	495	111.37	0.9706	0.9497	0.8444
2015	135	30.37	99	22.72	490	110.24	0.9228	0.9606	0.8566
2016	124	27.61	164	36.52	507	112.90	0.9353	0.9432	0.8641
2017	86	18.83	86	18.83	453	99.17	0.9615	0.9736	0.8922

Source: authors' processing

The gender pay gap is favourable for men, for the whole period analysed, for all three categories of enterprises, the ratio between nominal female / male earnings being between 90.46% in 2011 and 97.06% in 2014, the period of the ten years analysed recording variations of this report. The calculated values are lower in terms of enterprises with more

than 250 employees, where the lowest level of the report is recorded in 2011, 82.68%, the highest level corresponding to 2017 - 89.22%. On the average, during the ten years analysed, the ratio of the number of female / male employees is 78.35% for companies with less than 50 employees, 74.54% for those with 50-249 employees and 105.17% for those with more than 250 employees.

Table 3: Net nominal average wage gaps (euro), by companies' size classes

Company	Δ_{2009} 2008	Δ_{2010} 2009	Δ_{2011} 2010	Δ_{2012} 2011	Δ_{2013} 2012	Δ_{2014} 2013	Δ_{2015} 2014	Δ_{2016} 2015	Δ_{2017} 2016
Under 50 employees	87.0 2%	107.6 9%	105.2 8%	95.56 %	102.2 0%	110.6 6%	114.0 1%	109.1 6%	100.7 9%
50 – 249 employees	92.4 1%	105.3 2%	101.2 5%	99.17 %	105.9 5%	106.3 3%	111.2 5%	113.1 8%	112.5 5%
Over 250 employees	91.7 2%	99.26 %	102.1 2%	100.2 4%	108.1 2%	99.86 %	107.7 9%	108.5 9%	112.1 2%

Source: authors' processing

In 2009 compared to 2008, during the economic crisis, wages decreased, affecting mostly small enterprises (with less than 50 employees), the situation being remedied slowly, except for 2012, when, compared to 2011, at in this category and in medium-sized enterprises, there is a small decrease, and in large enterprises, the income situation deteriorates slightly in 2014 compared to 2015.

Small businesses are those that, although dominant in number in the economy, do not find solutions to increase revenue, especially due to low productivity and a poor level of technical equipment. Large companies, with over 250 employees, although the least numerous, have a favourable evolution of salary incomes, mainly due to the efficiency of management and know-how implemented in subsidiaries of multinational companies.

Table 4: Average monthly net nominal earnings, by size classes of companies and by gender, for the public sector

Company category	m.u	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
General	Under 50 employees	Lei	1503	1662	1448	1402	1519	1689	1792	1930	2237	2858
		Euro	408.12	392.23	343.95	330.85	340.89	382.21	403.19	434.20	498.13	625.64
	50 – 249 employees	Lei	2229	2107	1983	1994	2186	2377	2609	2807	3128	3969
		Euro	605.26	497.25	471.03	470.52	490.57	537.90	587.00	631.50	696.54	868.85
	Over 250 employees	Lei	2433	2458	2318	2308	2429	2639	2859	3068	3398	4048
		Euro	660.66	580.09	550.61	544.61	545.11	597.19	643.25	690.21	756.66	886.15
Female	Under 50 employees	Lei	1395	1544	1352	1326	1464	1622	1724	1887	2183	2749
		Euro	378.80	364.38	321.15	312.89	328.55	367.05	387.89	424.52	486.10	601.78
	50 – 249 employees	Lei	2293	2086	1977	1969	2178	2384	2629	2823	3147	4029
		Euro	622.64	492.29	469.61	464.62	488.78	539.49	591.50	635.10	700.77	881.99
	Over 250	Lei	2261	2269	2078	2028	2164	2396	2635	2854	3191	3897
		Euro	613.613	535.535	493.493	478.478	485.485	542.542	592.592	642.642	710.710	853.853

	employees	o	95	48	60	54	64	20	85	07	56	09
Male	Under 50 employees	Lei	1637	1805	1568	1496	1585	1767	1871	1984	2305	2993
		Euro	444.51	425.98	372.46	353.00	355.70	399.86	420.96	446.34	513.27	655.20
	50 – 249 employees	Lei	2163	2132	1998	2027	2194	2369	2583	2787	3104	3727
		Euro	587.34	503.15	474.60	478.30	492.37	536.09	581.15	627.00	691.19	815.88
	Over 250 employees	Lei	2667	2723	2650	2696	2805	2995	3192	3394	3727	4295
		Euro	724.20	642.63	629.47	636.16	629.49	677.76	718.17	763.55	829.92	940.22

Source: authors' processing, apud the information from Romania's Statistic Yearbook, 2018

In the public sector, due to the austerity measures taken by the Romanian Government to reduce the effects of the economic crisis, there was a reduction in the level of wages in the budget sector by 25% in 2010-2011, the level of average monthly net earnings fluctuated and major increases were recorded in the last two years analysed.

Gender pay gaps are favourable for men, for public enterprises with less than 50 and over 250 employees, the ratio between nominal female / male earnings being between 85.22% in 2008 and 95.11% in 2015, in the analysed interval there are variations of this ratio. The exception to this trend is the value of the average net monthly nominal earnings for public enterprises with 50-249 employees, where the salary level of women exceeds that of men constantly, since 2013.

Table 5: Differences and male - female wage ratio in the public sector

Year	Male - female salary differences (lei)						Female - male salary ratio (%)		
	Under 50 employees		50 – 249 employees		Over 250 employees		Under 50 employees	50 – 249 employees	Over 250 employees
	Lei	euro	Lei	euro	Lei	euro			
2008	242	65.71	-130	-35.30	405	109.97	0.8522	1.0601	0.8481
2009	261	61.60	46	10.86	454	107.14	0.8554	0.9784	0.8333
2010	216	51.31	21	4.99	572	135.87	0.8622	0.9895	0.7842
2011	170	40.11	58	13.69	668	157.63	0.8864	0.9714	0.7522
2012	121	27.15	16	3.59	641	143.85	0.9237	0.9927	0.7715
2013	145	32.81	-15	-3.39	599	135.55	0.9179	1.0063	0.8000
2014	147	33.07	-46	-10.35	557	125.32	0.9214	1.0178	0.8255
2015	97	21.82	-36	-8.10	540	121.48	0.9511	1.0129	0.8409
2016	122	27.17	-42	-9.35	536	119.36	0.9471	1.0135	0.8562
2017	244	53.41	-137	-29.99	398	87.13	0.9185	1.0352	0.9073

Source: authors' processing, apud the information from Romania's Statistic Yearbook, 2018

On average, during the ten years analysed, the ratio of the number of female / male employees is 121.35% for public enterprises with less than 50 employees, 125.18% for those with 50-249 employees and 146.70% for those with over 250 employees, highlighting the more pronounced female character of the organizational culture in the enterprises subordinated to the public power.

Table 6: Average monthly net nominal earnings, by size classes of enterprises and by sex, for the private sector

Company category		m. u.	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
General	Over 50 employees	lei	1100	1096	1205	1294	1280	1288	1449	1669	1833	2148
		euro	298.69	258.66	286.23	305.34	287.25	291.47	326.01	375.48	408.17	470.22
	50 – 249 employees	lei	1503	1646	1804	1860	1921	2004	2136	2402	2751	3050
		euro	408.12	388.45	428.51	438.90	431.10	453.50	480.58	540.38	612.59	667.67
	Over 250 employees	lei	2026	2264	2380	2519	2658	2813	2982	3237	3517	3909
		euro	550.14	534.30	565.33	594.40	596.50	636.57	670.93	728.23	783.16	855.72
Female	Under 50 employees	lei	781	767	846	896	910	924	1043	1158	1282	1526
		euro	213.81	181.01	200.95	211.43	204.22	209.10	234.67	260.52	285.47	334.06
	50 – 249 employees	lei	1043	1145	1220	1269	1338	1394	1478	1676	1901	2108
		euro	283.22	270.22	289.79	299.44	300.27	315.46	333.89	377.05	423.31	461.46
	Over 250 employees	lei	1401	1581	1635	1745	1833	1919	2002	2187	2382	2635
		euro	380.43	373.11	388.37	411.76	411.36	434.26	450.43	492.01	530.42	576.83
Male	Under 50 employees	lei	859	852	920	991	971	964	1077	1267	1384	1600
		euro	255.45	201.07	218.53	233.84	217.91	218.15	242.32	285.04	308.19	350.26
	50 – 249 employees	lei	1181	1275	1401	1429	1457	1520	1622	1804	2091	2294
		euro	320.69	300.90	332.79	337.20	326.97	343.97	364.94	405.85	465.41	502.18
	Over 250 employees	lei	1581	1738	1813	1907	2028	2170	2322	2503	2730	3027
		euro	429.30	410.17	430.65	450.02	455.12	491.06	522.43	563.10	607.91	662.64

Source: authors' processing, apud the information from Romania's Statistic Yearbook, 2018

As regards the private sector, there is a greater gap between wage levels by size groups of enterprises, a steady but slower evolution of the level of wages for enterprises under 50 employees, due to increases in the minimum wage imposed by the state and low labour productivity. For enterprises with 50-249 employees, the female-male differences are significant, and for enterprises with more than 250 employees, the differences from the public sector are smaller than from the other two categories of enterprises. The male-female wage differences are constantly favourable to the male gender, regardless of the size of private enterprises, however, there are significant differences in 2017 in private enterprises with over 250 employees, in which the salaries obtained by women represent only 87.05% of those earned by men.

Table 7: Differences and male - female wage ratio in the private sector

Years	Male - female salary differences						Female - male salary ratio (%)		
	Under 50 employees		50 – 249 employees		Over 250 employees		Under 50 employees	50 – 249 employees	Over 250 employees
	Lei	Euro	Lei	euro	Lei	euro			
2008	78	21.18	138	37.47	180	48.88	0.9092	0.8831	0.8861
2009	85	20.06	130	30.68	157	37.05	0.9002	0.8980	0.9097
2010	74	17.58	181	42.99	178	42.28	0.9196	0.8708	0.9018
2011	95	22.42	160	37.75	162	38.23	0.9041	0.8880	0.9150
2012	61	13.69	119	26.71	195	43.76	0.9372	0.9183	0.9038
2013	40	9.05	126	28.51	251	56.80	0.9585	0.9171	0.8873
2014	34	7.65	144	32.40	320	72.00	0.9684	0.9112	0.8622
2015	109	24.52	128	28.80	316	71.09	0.9140	0.9290	0.8738
2016	102	22.71	190	42.31	348	77.49	0.9263	0.9091	0.8725
2017	74	16.20	186	40.72	392	85.81	0.9538	0.9189	0.8705

Source: authors' processing apud the information from Romania's Statistic Yearbook, 2018

The lowest gap was registered in 2014, when the salaries obtained by women represented 96.84% of those obtained by men, in companies with less than 50 employees, given that the ratio of the number of female / male employees was 74.63%. On the average, during the ten years analysed, the ratio of the number of female / male employees is 75.38% for private enterprises with less than 50 employees, 66.35% for those with 50-249 employees and 79.26% for those with over 250 employees, highlighting the more pronounced masculine character of the organizational culture in the enterprises subordinated to the private power. According to Grybaite (2006), "the number of women in the world labour force is growing".

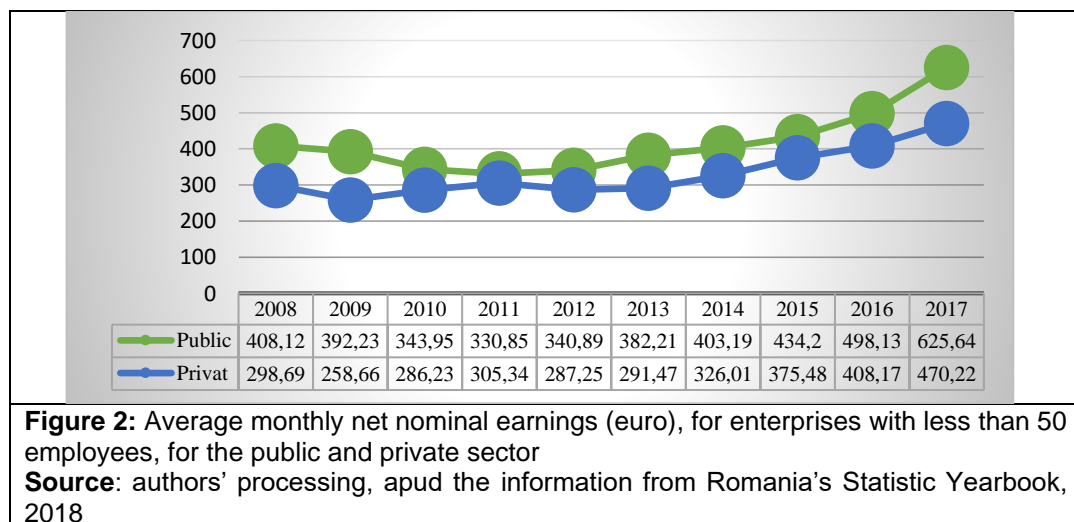


Figure 2: Average monthly net nominal earnings (euro), for enterprises with less than 50 employees, for the public and private sector

Source: authors' processing, apud the information from Romania's Statistic Yearbook, 2018

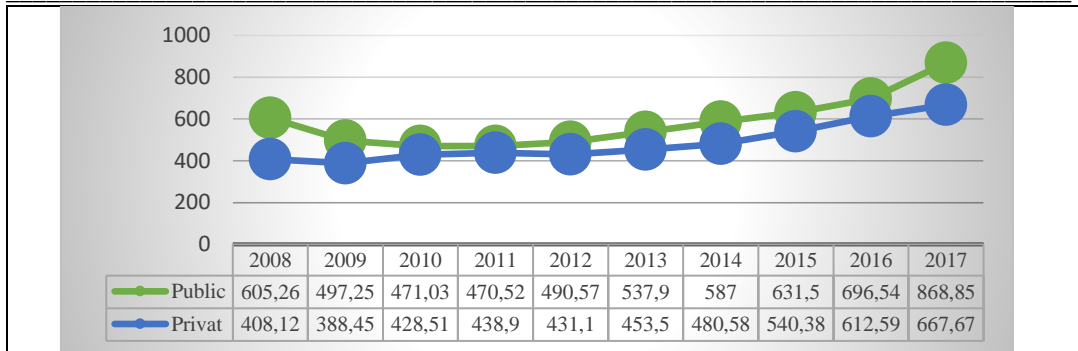


Figure 3: Average monthly net nominal earnings (euro), for enterprises with 50 - 249 employees, for the public and private sector
Source: authors' processing, apud the information from Romania's Statistic Yearbook, 2018

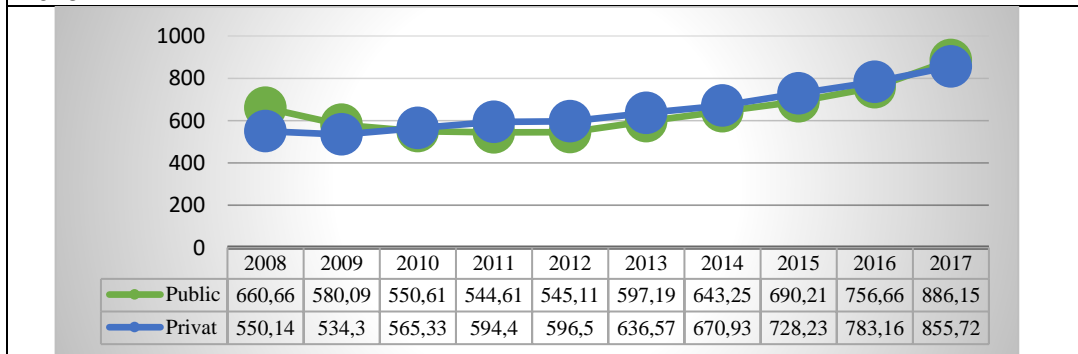


Figure 4: Average monthly net nominal earnings (euro), for enterprises with more than 250 employees, for the public and private sector
Source: authors' processing, apud the information from Romania's Statistic Yearbook, 2018

According to the Global Gender Gap Report, "at the dawn of the 2020s, building fairer and more inclusive economies must be the goal of global, national and industry leaders". For small economic agents, which include mainly public administrations and local companies, there is a significant difference between the public and private sectors. This differentiation has been accentuated in the last two years also due to the salary increases that civil servants and medical staff have benefited from.

Regarding the economic agents with more than 250 employees, there is a decrease in the gap between 2008 and 2017, reaching the very situation where, in the autonomous utilities, large public companies, to register higher salary levels than in some multinational companies.

3.3. The correlation analysis

The data highlighted in the previous tables were processed and the results obtained are presented below. Thus, for all three criteria C1, C2 and C3, replacing the initial data for two parameters in a regression equation, this becomes:

$$\text{salary_earnings} = \alpha + \beta * \text{employees_no} + \varepsilon \quad (1)$$

The parameter α represents the value taken by the resultant variable Y (earnings), when the factorial variable X (number of employees) has the value zero and may have higher or lower relevance depending on the case analysed.

The coefficient β represents the regression coefficient, so the value by which the resultant variable Y changes (earnings) when the factorial variable X (number of employees) changes by one unit, its sign determining the level of interdependence between the resultant variable and the factorial variable.

For the analysis of the connection between the two variables, the results of the statistical tests Student and Durbin Watson were used, the table below presenting the values obtained in the program, centralized according to the three basic criteria.

Table 8: The values of the calculated statistical variables

C1	-	R-	F-	Durbin	t-	t-	Coeffici	Coeffici
Company	Category	Square	Statistic	-	Statistic	Statistic	ent α	ent β
		d	s	Watson	α	β		
Under 50 employees		0.267266	2.771020**	.263697**	-0.177010	1.664638	-128.7646	0.000873
50 – 249 employees		0.130220	1.197729**	.425903**	-0.520956	1.094408	2798.760	0.002567
Over 250 employees		0.007093	0.057153**	.193384**	0.988444	-0.239067	2704.129	-0.000303
C2	-	R-	F-	Durbin -	t-	t-	Coefficien	Coefficien
Activity	Category	Square	Statistics	Watson	Statistic	Statistic	t α	t β
		d			α	β		
Public								
Under 50 employees		0.037808	0.314349*	.372607*	0.276567	0.560669	596.8565	0.010999
50 – 249 employees		0.011767	0.095257*	.325604*	1.289248	-0.308638	3334.987	-0.004060
Over 250 employees		0.325861	3.866993*	.461180*	3.482820	-1.966467	6391.587	-0.003594
Private								
Under 50 employees		0.199052	1.988163*	.258940*	0.137343	1.410022	128.1949	0.001030
50 – 249 employees		0.111632	1.005276*	.382299*	-0.156057	1.002635	-389.4214	0.002795
Over 250 employees		0.310581	3.603981*	.448009*	-0.757636	1.898415	-1886.662	0.004080
C3	-	R-	F-	Durbin	t-	t-	Coefficien	Coefficien
Gender of	Category	Square	Statistics	-	Statistic	Statistic	t α	t β
		d		Watson	α	β		

Female								
Under 50 employees	0.19859 0	1.982412* *	.20628* *	- 0.22499 8	1.40798 2	-269.5678	0.002777	
50 – 249 employees	0.34832 0	4.275959* *	.67762* *	- 1.56618 2	2.06783 9	-6618.020	0.018784	
Over 250 employees	0.10336 4	0.922234* *	.18496* *	- 0.26642 9	0.96033 0	-1001.923	0.003265	
Male								
Under 50 employees	0.26565 4	2.894053* *	.31719* *	-.057611	1,70119 2	-53.12792	0.002014	
50 – 249 employees	0.04784 1	0.401961* *	.30661* *	0.03577 6	0.63400 4	119.6808	0.003392	
Over 250 employees	0.19525 5	1.941033* *	.30964* *	2.39245 0	- 1.39321 0	7254.418	-0.004009	

Source: authors' processing

In cases where $\beta > 0$, the link between the factorial variable and the resultant one is a direct one, so when the growth rate of the number of employees has an increasing evolution, the salary gain also increases.

When coefficient β is positive, we can encounter the following situations:

- $\beta < 1$ – when the influence of the factorial variable on the resulting one is weaker;
- $\beta > 1$ – when the influence of the factorial variable on the resulting one is very strong;
- $\beta = 1$ – when the resulting variable varies in direct proportion to the variation of the factorial variable.

If the coefficient $\beta < 0$, the resulting variable representing earnings is independent of the number of employees.

Based on the data obtained above, we can observe in our case both positive and negative values of the coefficient β , all positive values being subunitary, which indicates a relative influence on the resultant variable Y. In cases where we observe negative values, they correspond, as can be seen from the table above, to large enterprises, and it can be concluded that there is an independent relationship between the two variables in this case. The link observed by calculating the correlation coefficient overall indicates a weak or moderate relationship from this point of view, there are secondary factors that can act on the long-term phenomenon and can show a particular influence on the identified relationship. The statistical verification of the unifactorial model is thus performed based on the Student and Durbin - Watson tests.

In the first case, the tabular value to be used is determined from the table corresponding to the Student distribution, depending on $v = n - 1$ degrees of freedom and probability $\alpha / 2 = 0.05 / 2 = 0.025$. According to the table of values, the value $t_{critic} = 2.262$.

In most cases presented in the results table above, the calculated value of the model parameters is less than or equal to the critical value. ($t_\alpha, t_\beta < t_{critic}$), in which case the null hypothesis is accepted, the β estimators not being significantly different from zero. This is the case for private enterprises in particular, as this phenomenon is observed in the case of medium and large enterprises. Most employees in Romania who work in companies with less than 50 employees, are employed with a minimum wage in the economy, noting the phenomenon of "undeclared" pay. There is therefore a high share of employees employed at a minimum, the average approaching the level of the minimum wage in the economy. Its evolution in the time period 2008 - 2017 is presented in the graph below:

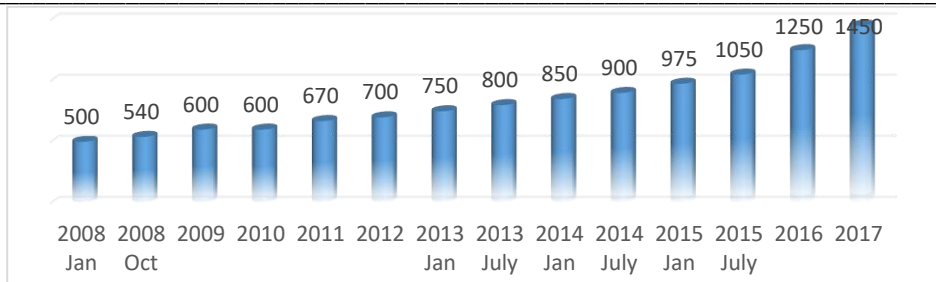


Figure 5: Evolution of the minimum wage in the economy in Romania (lei)

Source: authors' processing, according to information provided by Manu Consulting

What we can observe according to this information is first of all an increasing evolution, there being years in which the increases took place in two different months. The level corresponding to 2017 is three times higher than that corresponding to the base year, the growth rate being illustrated in the following table:

Table 9: Minimum wage growth rate

	2008/ 2008 (Oct/Jan)	2009/ 2008	2010/ 2009	2011/ 2010	2012/ 2011	2013/ 2013 (Jul/Jan) 2013/ 2012 (Jan)	2014/ 2014 (Jul/Jan) 2014/ 2013 (Jan /Jul)	2015/ 2015 (Jul/Jan) 2015/ 2014 (Jan/Jul)	2016/ 2015 (Jul)	2017/ 2016
Growth rate	13.64% 8%	11.11%	-	11.6%	4.48%	7.14% 6.66%	6.25% 5.88%	8.33% 7.70%	19.0%	16%

Source: authors' processing

The unifactorial model can, of course, be developed in order to obtain more accurate results, adding other influencing factors (e.g. inflation rate - fig. No. 9) or developing the analysis for a longer period of years, in order to achieve a relevant long-term analysis.

For the Durbin Watson test, two tabular values, one lower and one higher, d_L and d_U , are determined from the corresponding statistical tables, depending on the significance level of the test (0,05) and the number of observations (10), k being equal to 1, being a unifactorial model. In our case, the tabular values are $d_L = 0.88$ and $d_U = 1.32$.

From the observations introduced and the results obtained, we find that $d < d_L$ in all situations, regardless of the size class of the company or the type of employees, the hypothesis of autocorrelation of random variables is accepted, the values of the variable being dependent on each other. The model can be corrected, taking into account the influence that the guaranteed minimum wage level on the economy has on the overall evolution, as well as the influence of the legislative framework, the tax system, inflation or internal and external labour migration.

5. Conclusions

Approached from the perspective of the concept of sustainability, the Romanian labour market has only partially the characteristic of maintaining a desired trend (increasing employment and living standards of employees), there are variations over time, either due to the effects of the economic crisis (Balcar, Gottvald, 2016) (2008 - 2009), or influences of

the structure of the internal business environment and the level of training of the workforce, or a manifestation of the effects of electoral cycles on the wage system.

From the perspective of gender differences, the elements of human capital can play an important role in explaining the pay gap. Men and women do not choose the same type of schooling and implicitly the same professions, and from the perspective of experience, women tend to be deficient due to career interruptions caused by raising children.

A common phenomenon on the Romanian labour market is the lack of concordance between the level of education of the employee and the one required by the position in the company's organigramme. Although the legislation provides for higher levels of the minimum wage for graduates, employers, in order to avoid increasing salary costs, do not provide in their organizational structure, positions that require this qualification. This reality does not stimulate young people to pursue higher education and, a situation reflected by the last position occupied by Romania in terms of the number of graduates in the age category 30-34%, only 26%, in 2017, well below the European average of 40%.

Following the research aiming at the evolution of the salary differences in the public and private sector, depending on the order of size of the enterprises, by the number of employees and by gender (male / female), the hypotheses subject to validation are:

- Salary incomes in public enterprises are higher than in the private sector, the gaps widening over time, a hypothesis confirmed by the analysis of statistical data on net salary incomes in Romania, in the period 2008-2017;

- Due to economies of scale and productivity increases, wages in large enterprises (over 250 employees) are higher than in SMEs. Wage differences on the level of large enterprises are insignificant between the public and private sectors. In the analysed period there is a salary gap between the two sectors, in favour of the private one, until 2017, when in the public sector there is an average net monthly salary income of 886 euros, higher than in the private sector, of 855 euros;

- Gender discrimination from the perspective of salary income is registered in the case of all types of enterprises. This hypothesis is partially verified, with the exception of the average net salaries obtained in the public sector for medium-sized companies (50-249 employees), from 2013 to 2017, when the female / male wage ratio is super unitary;

- The economic dimension of sustainability is determined by a priority contribution of the private sector to the generation of capital gain, and therefore a primary distribution of income with priority to this sector. This hypothesis is not verified in the case of SMEs, where the average level of the monthly net salary exceeds in the public sector the one registered in the private sector.

The analysis of salary incomes in Romania in the period after its accession to the European Union highlights the incoherence of development strategies from the perspective of the structure of companies in terms of size and public-private relationship, in which the engine of sustainable economic growth should be private investment and therefore a business environment supported by public policies.

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