WAGE CORRELATION WITH CONSUMER PRICE INDEX - COMPENSATION AND INDEXING

Lecturer Ana CARP PhD *(karp_ana@yahoo.com)*
„Artifex" University of Bucharest

Abstract

Remuneration staff from public institutions is a priority issue for the Government. Salaries are set by law. The choice of payroll system is based on precise criteria. The problem of wage correlation with the consumer price growth index was generated by the galloping evolution of prices and the existence of a inflationary process in Romania since 1991. The concept of „base-salary compensation-indexation system" due to rising prices and tariffs was introduced by the Law no. 14/1991 on salary. Wage correlation was manifested by two methods: compensation and indexing. For the application of both correlation methods it starts from the cause, and this is common, respectively the increase of the consumer prices. Since the two methods are based on statistical indicators, it is necessary to know correctly the terms used by each method. In this article, the authors address the issue of salary, salary correlation methods, explaining the main concepts and formulas used to apply the methods.

Keywords: *wage, consumer price growth index, compensation, indexation, annual inflation rate, public institution.*

JEL Classification: *E31, J30*

Introduction

The price explosion in 1991 compared to the previous year led to a decline in the purchasing power of the national currency. At the same nominal wages, the quantity of goods and services that could be obtained became less and less, which led to the problem of correlating salaries in relation to the evolution of consumer prices.

During the period of price stability, for a long period of application, the salary was regulated by the Law no. 57/1974 on remuneration by quantity and quality of work.

Rising prices in general is defined as inflation. This process has begun to actively manifest itself in Romania since 1991. And in the period up to 1990, there was a inflationary process, but it was passive, not accepted in the economic-financial analyzes due to systemic reasons.

At the beginning of the inflationary process in Romania, it became necessary to adopt a new wage law. By the Salary Law no.14 of February 8, 1991, the salary was defined as a consideration for the work done by the employee and included basic salary, bonuses and bonuses.

The first and most important part of the salary is the basic salary, which according to the law „is established for each employee in relation to the qualification, the importance, the complexity of the work that corresponds to the job, the training and the professional competence”.

The other components of the salary, even if calculated in relation to the basic salary, depend on the results obtained, the actual conditions in which the work is carried out and, where appropriate, the length of service or occupation of each person. To the extent stipulated by law, bonuses and salary bonuses are taken into account when determining salary rights.

The form of organization of the unit, the way it is financed and the nature of the activity are essential criteria for imposing a salary system.

In the budgetary units and in the former autonomous administrations, wages are set by the Government in consultation with the unions.

In the market economy salaries are established through negotiations, which are collective and individual, and have as main pillars the legal provisions and the financial possibilities of the employer.

In a broad social dialogue framework, after consultation with trade unions and employers, the Government sets the minimum basic salary for the economy, so that the basic salaries determined by negotiation, as well as those established by government decisions or by law, can not be more lower than the minimum basic salary approved for normal work schedule.

Literature review

Anghelache, Marinescu, Lilea, Stoica (2017) approached the methodology for calculating the index of consumer price growth and presented the concept, definitions and calculation methods. Anghelache, Voineagu, Gheorghe (2013), in an ample analysis, illustrated methods and models for measuring inflation. The method of statistical determination of inflation and the procedure for calculating the „General Inflation Indicator” was approached by Dumitrescu and Săvoiu (2016). The possibilities for increasing wage and pension income were addressed by Anghelache, Carp (2016), and Carp (2017) presented the correlation between gross average wage and pensions. Kanagaretnam, Sarkar (2011) have promoted the concept of clearing agreement. Kräkel and Anja Schöttner (2016) explain the frequent compensation plans in practice of fixed wages with bonuses based on quotas or their optimal combinations. Anghel, Anghelache, Carp (2017) illustrated the correlation between the main macroeconomic indicators and the models built on them.

Research methodology, data, results and discussions

• Legislative framework of compensation and salary indexation

The first salary law, which for the first time laid down the notion of „**basic salary-compensation-indexation system**” due to the increase in prices and tariffs is the Law no.14 / 1991.

One of the levers of the pay system that the government has at its disposal is **the size of the gross minimum wage in the guaranteed economy**. For public institutions with total and / or partial funding from the state budget, state social security budget, local budgets and special fund budgets, it is compulsory to correlate salaries according to the gross minimum wage in the economy. In public institutions, the payroll system is established by law, in consultation with representative trade union organizations. The architecture of the pay system depends on the amount of financial resources allocated to their budget.

In order to ensure social protection measures in Romania, government decisions aimed at indexing salaries, pensions and other income of the population.

The main purpose of correlating incomes with prices was to offset the inflationary process and to ensure the relative stability of the income level of the population.

The legislator operated on the income of the population through the correlation of the gross minimum wage on the economy, increased by the percentage of the increase in consumer prices.

For the correlation of salaries between 1991-1998, the Government applied a series of judgments, which permanently pursued the maintenance of the purchasing power of wages corresponding to the evolution of the consumer prices.

Thus, the correlation of salaries was provided by the following normative acts: G.D. (Government Decision) No. 579/1991, G.D. no. 19/1992, G.D. No. 149/1992, G.D. No. 218/1992, G.D. No. 499/1992, G.D. No. 774/1992 G.D. No. 94/1993, G.D. No.177 / 1993, G.D. No. 243/1993, G.D. No. 381/1993, G.D. No. 588/1993, G.D. No. 684/1993, G.D. No. 34/1994, H.G. No. 177/1994, G.D. No. 433/1994, G.D. No. 182/1995, G.D. No. 482/1995, G.D. No. 801/1995, H.G. No.210 / 1996, G.D. No.542 / 1996, H.G. No. 26/1997, G.D. No. 467/1997, G.D. nr.208 / 1998.

These judgments provided for **both correlation methods**, ie **compensation** and **indexing**, or only one method, as the case may be. The following government decisions provided only salary indexation: G.D. No. 94/1993, G.D. No. 243/1993, G.D. No. 177/1994, G.D. No. 182/1995, G.D. No. 482/1995 and H.G. no.801 / 1995..

- Compensation of wages

Starting from the notion of a „basic salary-compensation-indexation system” due to the increase in prices and tariffs, a concept introduced by the Law no. 14/1991 on salaries, it is necessary to know each term or method, because the application of one inappropriately leads to the use the mismanagement of budgetary resources, but also the maintenance of a vicious working climate between employers and employees.

In the legal provisions, the clearing term is well defined. Thus, we exemplify how these methods are dealt with by the provisions of art. 5 of G.D. no. 542/1996, which are: „**(1)** The individual salaries of the personnel in the budgetary sector and the autonomous regies with special character, as well as the framed personnel in work by natural or legal persons, indexed according to the provisions of the present decision, there **is added compensation** corresponding to the increases in prices of electric and thermal energy, fuels for food preparation and heating and bread, amounting to 11,000 lei per month”.

The concrete way of granting compensation is set by the social partners according to the employer’s financial possibilities and taking into account the increase in wages resulting from the negotiations.

Compensation of wages constituted between 1991 and 1998 a method of correlating salaries through which fixed amounts were granted. After the expiry of the grant period, compensation could or may not be included in the basic salary. As a rule, the inclusion or non-inclusion of fixed amounts temporarily granted by the legislator is a decision of the social partners, which is admitted in a wider framework of collective bargaining.

Thus, between 1991 and 1998, the amounts granted as cash compensations are presented in the following table:

Legislation	Compensation
Government Decision nr.177/24.03.1993	10.160
Government Decision nr.588/02.11.1993	12.420
Government Decision nr.684/29.11.1993	13.225
Government Decision nr.443/29.07.1994	14.025
Government Decision nr.542/05.07.1996	11.000; 17.000 and so on

It is noted that the compensation was usually a fixed amount, which did not depend on the variable salary of each person, but on the evolution of prices in a category of food goods or services, which was the first necessity, so that **each person was allocated the same amount.**

- Wage indexing

Salary indexing is a distinct method which consists in a direct increase of each salary by applying a percentage increase to basic salary.

Both methods of correlation are started from the cause, and this is common, respectively the increase in consumer prices.

The association of consumer price growth with wage increases makes indexation a wage increase due to this factor of influence, although wage growth is mainly determined by the economic development factor.

The social partners decide on the percentage increase of the basic salaries and the criteria are financial, but also correlated with the evolution of the consumer prices.

• Compensation - indexing - current salary correlation methods

According to the **updated Labor Code of January 24, 2003, the salary includes the same items** as the basic salary, allowances, bonuses, and other supplements.

Collective Labor Agreements lay down clauses providing for the modalities of raising the basic salary.

The current Labor Code provides for compensatory arrangements such as: the granting of compensatory amounts in case of collective redundancies; to provide compensation in the form of indemnity if it is not possible to make leave of absence in kind; payment of increased amounts in the form of bonuses for hours provided under certain conditions, and compensation of 75% of the salary in the case of technical unemployment, etc.

Without exhausting all the situations for which compensation is provided, we can assume that the method of wage compensation consists in supplementing / supplementing the salary due to the performance of the work under certain conditions or the interruption of the employee's employment relations for reasons not related to his decision.

The provision of fixed-rate compensation without a proportionality to wages has led to additional costs, which has made it possible to continue the wage correlation in the economy by means of the indexation of wages, ie the provision of a direct value equivalent according to salary level individual.

The proportionality criterion is easy to apply in budgeting, but it is also a fair criterion, since it is directly linked to the basic salary, which is the consideration of the work done by each individual.

Since the two methods are based on statistical indicators, it is necessary to know correctly the terms used by each method.

• **Compensation of wages with the consumer price index**

Collective Labor Contracts of different employers meet the wage compensation clause with the consumer price index.

For the application of the clauses of collective labor agreements, **„Methodological notes - Consumer price indices"** are available to users so that wage negotiations are carried out by the unitary understanding of the statistical terms used.

From the methodological notes of I.N.S., the most important basic concepts and definitions are:

- " **The annual** inflation rate represents the increase in consumer prices in a month of the current year, compared to the same month of the previous year. This rate is calculated as a ratio, expressed as a percentage, between the **one-month price index of the current year** and the index of the corresponding month of the previous year, cached against the same basis, whichever falls 100".
- „**The average annual inflation rate** represents the increase in consumer prices in a year compared to the previous year. This rate is calculated as a ratio, expressed as a percentage, between the one-year average and the previous year's average price index of 100. In turn, the average price indices of the two years are determined as simple arithmetic means of the monthly indices of each year, calculated against the same basis (October 1990). „

The relationship between the growth rate and the CPI is:

CPI = 100% + rate..

- ***The Consumer Price Index (CPI)*** is an economic indicator that measures the overall evolution of prices of purchased goods and service tariffs used by the population over a given period (the current period) compared to the previous period (called the base period; or reference).
- ***The annual consumer price*** *index measures the overall evolution of prices of purchased goods and services tariffs used by the population in a given month of the current year, as compared to* ***the same month of the previous year.***.

In order to compensate for the basic salary the relations are used:

$$A = \frac{Initial\ Upgrade\ Initial\ Amount * CPI}{100} \quad (1)$$

or

$$B = \frac{Initial\ amount\ to\ be\ updated\ * Inflation\ rate}{100} + Initial\ amount\ to\ be\ updated \quad (2)$$

Using either of these two relationships, the same result is obtained given the relationship between the two indicators:

Inflation rate$= CPI - 100$ (3)

We deduct that the amount granted as compensation has the following formula:

Compensation $= \frac{\text{Initial amount to be updated} * \text{CPI}}{100} - \textit{Initial amount to be updated}$ (4).

The calculation formulas that lead to the same result are:

$$Compensation = A - Initial\ amount\ to\ be\ updated \quad (5)$$

$$Compensation = B - Initial\ amount\ to\ be\ updated \quad (6)$$

In order to find out the value of the consumer price growth index, the NIS database is questioned because the consumer price index is published in the database.

An annual consumer price index is taken through the monthly CPI menu query, as it defines the price evolution „in a month of the current year, compared **to the same month of the previous year**."

For example, we show that at September 2017, the published CPI is 101.77% compared to September 2016. The result of the query is shown in the table below:

Monthly Consumer Price Index - Search results		
Current period	**Reference period**	**TOTAL CPI (%)**
2017 – September	**2016 - September**	101,77

The calculation made by INS is also published in excel format in ipc09.xls and is presented in the following table:

Rata anuala a indicelui preturilor de consum (%):													
Data	Sept. 2016	Oct. 2016	Nov. 2016	Dec. 2016	Ian. 2017	Feb. 2017	Mar. 2017	Apr. 2017	Mai 2017	Iun. 2017	Iul. 2017	Aug. 2017	Sep. 2017
IPC	-0.6	-0.4	-0.7	-0.5	0.1	0.2	0.2	0.6	0.6	0.9	1.4	1.2	1.8

In conclusion, the interrogation sequence for the **annual CPI** consists in choosing the current base and choosing the same month of the previous year as a reference base. For the last year of calculation, the IPC is 101.77%.

The annual CPI is used for the calculation of wage compensation when the social partners have provided an annual wage compensation clause in Collective Labor Agreements.

In the case of staggered basic salary compensation, CPIs with a base base and benchmark base are used by querying the same basis of the monthly CPI. The baseline is the month from which basic salary compensation is granted and the current basis is the month considered by the social partners up to which the compensation is calculated.

The general indexing ratio is:

$$CPI_{i/0} = CPI_{i,i-1} * CPI_{i-1,i-2} * \ldots * CPI_{1,0} \quad (7)$$

In the case of the annual CPI, which corresponds to the calendar year, the sequential calculation relation is:

$$ICPI_{december\ 2016/december\ 2015} = CPI_{december\ 2016/september\ 2016} * CPI_{september2016/june2016} * CPI_{june\ 2016/march2016} * CPI_{march2016/december\ 2015} \quad (8)$$

This method is used for quarterly compensation of basic salaries:

- o in Quarter 1 applies $CPI_{march\ 2016\ /\ december\ 2015}$
- oin Quarter 1 applies $CPI_{iunie\ 2016/march\ 2016}$
- oin Quarter 1 applies $CPI_{september\ 2016/june2016}$
- oin Quarter 1 applies $CPI_{december\ 2016/september\ 2016}$.

To calculate the compensation for the first quarter, we note the base salary with S and apply the calculation formula (4). Compensation is calculated using the following formula:

$$Compensation = \frac{S * CPImarch\ 2016/december\ 2015}{100} - S \quad (9)$$

The formula is applied successively for each quarter.

In case of annual compensation with annual CPI, $CPI_{december\ 2016/december\ 2015}$ applies. For the year 2016 chosen as the calculation example, the annual compensation is calculated using the formula. For year 2016 chosen as an example of calculation, the annual compensation is calculated with the formula:

$$Compensation = \frac{S * CPIdecember\ 2016/december\ 2015}{100} - S \quad (10)$$

• Use of terms in wage and pension legislation

In the legislation on wages, pensions and other rates / amounts to be increased, the indicator to be used is:

- Thus, in the field of state military pensions, it is currently planned to index the average annual inflation rate:

"(1) The amount of state military pensions shall be indexed annually by 100% of the **annual average rate of inflation** plus 50% of the actual increase in gross average earnings.

(2) The indicators provided in paragraph (1) are the definitive, known in the current year "[1]

- Starting with 2021, military pensions are indexed „annually by 100% of the **inflation rate** plus 45% of the real increase in gross earnings for the previous year."
- In the field of service pensions, the average annual inflation rate is used to update the pensions of professional civil aviation aircrew and auxiliary specialized personnel of the courts and prosecutor's offices attached to them and of the staff working at the National Institute of Forensic Expertise:

"The service pension shall be updated, ex officio, each year, with the **average annual inflation rate**, a definitive indicator, known on 1 January of each year in which the update is made and communicated by the National Institute of Statistics. If the pension results in a lower pension, the retirement pension is retained"[23].

- As regards salaries, **salary increases are envisaged with reference to the average consumer price index:**

"The economic operators may increase the salary expenditures realized in the previous year, with the level approved by the income and expense budgets, at most with the average growth rate of the forecasted prices"[4].

- The consumer price index is used to index the nominal value of mass tickets („The indexed nominal value of a mass ticket is established by order of the minister of labor and social protection, half-yearly, in relation to the consumer price index for goods food, communicated by the National Commission for Statistics")[5].

For the remuneration of staff paid out of public funds, the law **provides** that „Collective labor agreements or collective labor agreements and individual labor contracts can not be negotiated with salaries or other rights in money or in kind that go beyond the provisions of this law[6]."

1. Law no.223 / 2015 on state military pensions

2. Law no.223 / 2007 on the Status of Civil Airborne Civil Aviation Personnel in Civil Aviation in Romania; Law no. 83 of 21 April 2015 for the completion of Law no. 223/2007 on the Status of Civil Aviation Civil Aviation Personnel in Civil Aviation in Romania

3. Law 567/2004 of 9 December 2004 on the status of auxiliary specialized staff of the courts and prosecutor's offices attached to them and of the staff working at the National Institute of Forensic Expertise

4. LAW no. 356 of 18 December 2013 of the state budget for 2014

5. NORMA of 14 January 1999 implementing Law no. 142/1998 on the granting of meal vouchers

6. FRAMEWORK LAW no. 153 of 28 June 2017 on the remuneration of staff paid from public funds

This imperative requirement requires knowledge of the terms, concepts and methods of calculating and updating salaries.

Conclusion

In the case of the salary of the staff paid from public funds, salaries higher than those provided by the law can not be negotiated.

Salary correlation is achieved by the following ways:

- by establishing the minimum wage per unit calculated on the basis of the minimum guaranteed wage in economy; It is set as a percentage of the gross average wage in the economy, so it is a function of the economic development factor;
- by correlating to inflation with the consumer price index, which is partly provided by the first way;
- by annual or periodic indexing.

In order to eliminate the confusion of the application of the methods for raising the salaries, it is necessary to define the terms correctly both in legal provisions and in collective labor agreements.

CPI indicators, annual CPI, annual average CPI, annual inflation rate, annual average inflation rate are defined in the INS Methodology, so that their other meaningful transfer by persons, whatever theirs, can affect the financial resources of public institutions or employers.

The absence of a set of definitions in a collective labor contract is not admissible because, in addition to the misuse of budgetary resources, there is room for interpretation and a vicious work environment is created in the light of the different interests of the participants in the economic activity.

Compensation with the consumer price growth index is, in conclusion, a method of awarding a salary amount, calculated as the difference between the actual value with the CPI of the base on which it is applied, ie the salary and the outdated initial value.

Indexing is the result of a percentage increase in salary.

Even though both methods have a common cause and a common indicator to use, ie the consumer price index, the methods have a different meaning.

In order to avoid potential labor disputes and to make judicious use of the financial resources of the budget of the public institution or the economic organization to which these clauses apply, it is imperative to specify in the Collective Labor Agreements the set of definitions of the indicators used and the formulas calculation.

References

1. Anghel, M.G., Anghelache, C. and Carp, A. (2017). The main correlations between the monetary-banking indicators. *Theoretical and Applied Economics, 2* (611), 99-110
2. Anghelache, C., Marinescu, R., Lilea, F. and Stoica, R. (2017). Elemente privind metodologia de calcul al indicelui preţurilor de consum. *Revista Română de Statistică Supliment*, 10, 97-105
3. Anghelache, C. and Carp, A. (2016). Modelul contribuţiilor voluntare – studiu privind completarea vechimii în muncă / The Voluntary Contributions Model – Study Regarding The Completion Of The Length Of Service, *Romanian Statistical Review Supplement*, 12, 182-199
4. Anghelache, C.; Voineagu, V., Gheorghe, M., (2013). *Metode şi modele de măsurare a inflaţiei*, Editura Economică, Bucureşti
5. Carp, A. (2017). The analysis of Romania's public pensions' growth opportunities. *International Conference of Management and Industrial Engineering, Management in the Innovation Society*, Editura Niculescu
6. Dumitrescu, V. and Săvoiu, Gh. (2016). Modul de determinare statistică a inflaţiei – Procedura de calcul a Indicelui general al inflaţiei, *Revista Română de Statistică Supliment*, 11
7. Kanagaretnam, K. and Sarkar, S. (2011). Managerial compensation and the underinvestment problem. *Economic Modelling, 28*, (1-2), 308-315
8. Kräkel, M. and Schöttner, A. (2016). Optimal sales force compensation. *Journal of Economic Behavior & Organization, 126*, issue PA, 179-195
9. *** Legea salarizarii nr.14 din 8 februarie 1991
10. *** Legea nr. 223/2015 privind pensiile militare de stat
11. *** Legea nr. 223/2007 privind Statutul personalului aeronautic civil navigant profesionist din aviaţia civilă din România; Legea nr. 83 din 21 aprilie 2015 pentru completarea Legii nr. 223/2007 privind Statutul personalului aeronautic civil navigant profesionist din aviaţia civilă din România
12. *** Legea 567/2004 din 9 decembrie 2004 privind statutul personalului auxiliar de specialitate al instanţelor judecătoreşti şi al parchetelor de pe lângă acestea şi al personalului care funcţionează în cadrul Institutului Naţional de Expertize Criminalistice
13. *** Legea nr. 356 din 18 decembrie 2013 a bugetului de stat pe anul 2014
14. *** Norma din 14 ianuarie 1999 de aplicare a Legii nr. 142/1998 privind acordarea tichetelor de masa
15. *** Legea nr. 7 din 2017 a bugetului de stat pe anul 2017
16. http://www.insse.ro/cms/files/statistici/comunicate/ipc/a17/precizari_metodologice.pdf