

Escalation in Employer Costs for Employee Compensation: A Guide for Contracting Parties

Like its forerunners, the Consumer Price Index and the Producer Price Index, the ECI is increasingly being used by business organizations as an escalator to adjust long-term sales and purchasing contracts, and to adjust wage rates in collective bargaining agreements.

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The Employment Cost Index (ECI) is particularly well suited as a vehicle to adjust long-term sales and purchasing contracts to reflect changing labor costs, and to adjust wage rates in collective bargaining agreements to keep pace with what is paid by other employers, for two reasons.¹ First, it is comprehensive. It includes not only wages and salaries but also employer costs for employee benefits, and covers nearly all employees in the civilian (non-Federal) economy.² Second, it measures the "pure" change in labor costs, that is, it is not affected by changes in relative employment of industries and occupations with different wage and compensation levels. The advantages of a fixed weight index, such as the ECI, compared with a measure of average earnings are illustrated in an example presented in the appendix.

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The BLS Role in Escalation

The role of the Bureau of Labor Statistics is to provide requested data and to explain their underlying methodology and limitations. The Bureau does not encourage or discourage the use of price adjustments in purchase, sales, or labor contracts. Nor does the Bureau directly assist in writing contracts or provide advice on disputes arising from contract interpretation. Because index methodology and publication conventions could be crucial in developing escalation clauses, this report is intended to alert users to potential problems arising in these areas.³

This report provides guidance on the development of escalation clauses in contracts which are to be tied to ECI data. It is patterned after *Escalation and Producer Price Indexes: A Guide for Contracting Parties*, BLS report 807, and it comprises three sections. First, an overview of the Employment Cost Index system describes the major categories of indexes published each quarter. Then guidelines for assisting in the development of escalation clauses are outlined. Finally, practical examples of provisions that might be incorporated into a contract are presented, based upon the guidelines discussed, along with an example of the price adjustment calculations that would be needed to implement these provisions.

Structure of the ECI

The Employment Cost Index is a fixed-employment-weighted index which tracks changes in labor costs (wages, salaries, and employer costs for employee benefits), free from the influence of employment shifts among occupations and industries. It covers nearly all occupations and industries in both private industry and State and local governments. Approximately 120 series covering specific industry, occupation, area size, and union status categories are produced quarterly. Indexes are published for wages and total compensation for the various series, and for benefit costs for a few of the series. The reference period for the indexes is the week including the 12th of the months of March, June, September, and December. The index typically is published the last Tuesday of the month following the reference month. Seasonally adjusted data are available for a number of series, although it is recommended that only unadjusted data be used in escalation agreements. The unadjusted data are final as published and are not subject to revision.

The industry series are based on the 1987 Standard Industrial

Classification (SIC), as defined by the U.S. Office of Management and Budget. The occupational series are based on the 1990 Census of Population classification system.

The series on bargaining status, region, and area size are based on employment counts from the ECI sample, rather than external employment counts obtained from administrative records and a very large occupational employment survey.⁴

How to Escalate

Escalator clauses should be written with great care to avoid serious problems when contract adjustments are implemented. The information in this report is based upon BLS staff experience in handling issues that have been brought to their attention in connection with actual escalation clauses. The issues have been translated into several steps that should be followed to use escalation successfully.

I. Establish the costs to be escalated

Clearly specify the labor cost component in the contract to be escalated. This may be either wages and salaries, benefit costs, or total compensation. Indicate the specific occupations covered, the month or year of the base labor costs, and how long the contract will be in effect.

II. Select an appropriate index by industry, occupation, or other characteristic

The ECI provides a variety of series by industry, occupation, bargaining status, region, and area size. The series selected should reflect the characteristics of the group of workers whose labor costs are being escalated. Recognize, however, that there generally is a tradeoff between how specifically the group of workers covered is defined and the precision of the ECI as a measure of change. That is, in general, the more narrowly defined a

series is the larger the sampling error associated with any estimate of change is likely to be.⁵

A determination will also have to be made whether the escalator relates to wages and salaries only, or to total compensation.

If a contract represents different types of labor it may be best to choose multiple series to fit each individual category. Examples would be to escalate engineering salaries by the index for private industry workers, professional specialty and technical occupations; and to escalate production worker salaries by either the index for private industry workers, manufacturing, blue-collar occupations, or the index for private industry workers, manufacturing, durable goods.

Contracting parties may prefer to escalate on the basis of several data series, including some from other government statistical programs, to reflect changes in a variety of inputs. In some contracts, for example, costs of labor are escalated with the ECI while costs of materials and supplies are escalated with one or more producer price indexes. In such cases, the escalation clause should specify the percentage weights given to each index in calculating the total escalation amount.

Although the ECI covers nearly all workers in private industry and State and local governments, there are some gaps in the published series. For example, no index for mining is provided. Sometimes indexes must be chosen as proxies to estimate labor cost movements.

III. Clearly identify the selected index

The escalation clause must cite the particular index and series by its complete title, e.g., "Employment Cost Index for Total Compensation (not seasonally adjusted), private industry workers, service-producing industries, white-collar occupations excluding sales." Also, specific sources for obtaining the index must

be selected. Official BLS sources for the ECI are:

- “Employment Cost Index” quarterly news release
- *Compensation and Working Conditions*
- *Monthly Labor Review*
- *Employment Cost Indexes and Levels* (annual bulletin)
- ECI historical data listing
- The World Wide Web, at <http://stats.bls.gov/ecthome.htm>

Each source will have a different cost, publication schedule, and number of indexes printed. The “Employment Cost Index” quarterly news release includes all indexes, is free, and is mailed shortly after the quarterly data are released. To be placed on the news release mailing list, call (202) 606-6199. *Compensation and Working Conditions* includes each quarterly news release shortly after it is published, a complete historical listing of ECI data in the March issue each year, and analytical articles examining ECI and other compensation data. A subscription to *Compensation and Working Conditions* is \$12 per year (as of 1997). A subscription to the *Monthly Labor Review* (MLR) costs \$29 for 1 year, but the MLR may not include all currently available series and usually will not be available until about 3 months following the reference month. *Employment Cost Indexes and Levels*, published toward the end of each year, provides complete historical data through June of that year, and costs \$7.50. The latter three publications are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The ECI historical data listing is available free upon request, but because it is a computer printout,

it may not be regarded as “official” by some parties. The World Wide Web site contains the news release and complete historical data at the instant the data are published, but for some users there may be a requirement that the data be in paper form.

Cite the index and series by its full name rather than a table number or page number because documents are reformatted and table and page numbers occasionally change, whereas series titles very seldom change. BLS sources are preferable to secondary sources such as other government publications or private firms. If contracting parties agree to accept updated index values on the telephone from BLS staff members, the escalation clause should specify appropriate procedures and whether subsequent verification from a published source is necessary.

Note that periodically the industry and occupational classification systems change. This may alter what is published.

IV. Specify whether seasonally adjusted indexes or unadjusted indexes are to be used

In general, seasonally adjusted indexes are not appropriate in escalation agreements. Because price adjustment clauses usually are intended to capture actual price changes, contracting parties normally would not want to remove seasonal labor cost movements from their adjustment calculations.

V. State the frequency of escalation

The contracting parties should specify whether labor cost adjustments are to be made at fixed intervals, such as quarterly, semiannually, or annually, or only at the end of the contract. Also, specify if there are to be restrictions on the size of increases, such as a threshold change before adjustment takes place (for example, the change must exceed 2 percent before any wage adjustment is made), or a cap on the

amount of change at each readjustment period or over the life of the contract (for example, the largest wage increase is 3 percent regardless of how much the ECI increases). (See section VIII(e), below.)

Note that ECI indexes relate to the payroll periods including the 12th of the months of March, June, September, and December. Avoid wording such as “the index for wages and salaries, private industry workers as of September 30,” since several different and equally plausible interpretations are possible for such language. It could mean the index that was available on September 30, which would be the June figure; it could mean the September index; or it could mean the December index, since that index would be based in part on compensation changes that occurred before September 30. A clearer statement would be “the Employment Cost Index for wages and salaries for private industry workers, for the month of September.”

VI. Provide for missing or discontinued data

The ECI seldom discontinues a series, but because it might happen, escalation clauses should provide procedures to be used when required data are missing.

VII. Avoid locking indexes used for escalation into any particular reference period

Periodically, the ECI will change its index base. When indexes were first published for the survey, the index base was June 1981=100. In March 1990, the base changed to June 1989=100.⁶ The index base to be used should be the one in effect at the time the adjustment is to be made, which may not be the one in effect when the contract was written. The selection of the base matters especially when the escalator is expressed as a fixed dollar change for each change in index points, because the formula must be modified if the index base is changed.

(See section VIII (c), below.)

VIII. Define the mechanics of price adjustment

(a) Simple percentage method.

One method of price adjustment is to have the base price changed by the same percentage as that calculated for the selected Employment Cost Index series. To illustrate, suppose that the contract escalation clause refers to the private industry white-collar compensation cost index. Also suppose that the private industry white-collar compensation cost index was 110.0 when the base price or wage rate was set. A year later when the first adjustment is made, the figure is 115.5 This represents an increase of 5.0 percent in the private industry white-collar compensation cost index, calculated as follows:

Index at time of calculation	115.5
Divided by index at time base price was set	110.0
Equals	1.050

This means that the base price or wage rate should be increased by 5.0 percent. To proceed:

Base wage rate	\$11.00
Multiplied by	1.050
Equals adjusted wage	\$11.55

In later years this procedure would be applied again by taking the current index value and dividing it by the index value at the time the base price was set, and then proceeding just as described above. (See example clause I, below, for an illustration of this procedure.)

(b) Escalation of a portion of the base price. In long-term sales and purchasing contracts a procedure sometimes employed changes the base price

so that only part of it is escalated by a selected Employment Cost Index, while the balance remains fixed. This may be done by changing the base price by a certain dollar amount for each 1 percent movement in the selected index.

To illustrate, suppose that an item has a base price of \$1,000, of which \$700 is to be escalated by the index while the other \$300 remains unchanged. To determine the "certain dollar amount" that is needed for citation in the contract, simply divide the designated variable portion of the base price (\$700) by 100, which in this case would yield \$7. The escalation clause is written so that it provides that the base price of \$1,000 shall change \$7 for each 1-percent movement in the index.

Using this approach, the base price would rise to \$1,035.00 for a 5.0-percent rise in the ECI, as shown:

Base price	\$1,000.00
Plus 5.0 times \$7	35.00
Equals adjusted price	\$1,035.00

(c) Index points. Relatively few escalation clauses which rely on ECI data adjust contract prices on the basis of changes in index points. (In the earlier example, the index-point change would be 5.5.) When wages are adjusted by a percentage on the basis of a change in index points, the value of an index point will fall in percentage terms as the index level rises, and vice versa. For example, a 1-point increase in an index from 105.5 to 106.5 represents an advance of 0.9 percent, but a 1-point increase from 205.5 to 206.5 represents an upward movement of only 0.5 percent.

Conversely, a 0.9-percent increase in an index of 205.5 would raise the index 1.8 points, to 207.3.

Another disadvantage of adjusting wages by index points is that the procedure is vulnerable to changes in the index base period. For example, index point values for an index with June 1989=100 as the base will differ from those for an index with June 1981=100 as the base.

(d) Composite indexes. Some contracts describe construction of a composite index based on several ECI series, or the ECI and other measures such as the Producer Price Index. The advantage of a composite index is that it may more accurately identify the appropriate change from a base period since it will refer to several of the costs involved in producing the product or service in question. However, a composite index entails more calculations at the time of adjustment than the simpler procedures described earlier. Composite indexes constructed by the contracting parties are not official BLS data.

One procedure for specifying a composite index is illustrated by the following steps:

- (i) Choose the indexes that will represent the different costs involved in producing the item (such as blue-collar labor, white-collar labor, or whatever is appropriate);
- (ii) Choose the appropriate weights for these indexes, in accordance with the proportion of the production budget which may be devoted to these various categories. The list of chosen weights should sum to 100 percent;

- (iii) Clearly specify the time period that these relative weights are supposed to represent. The weights should be chosen to represent the time period associated with the base price (i.e., the base period);
- (iv) The first step necessary for the calculation of the special index is to rebase all of the original index data to the contract's base period. This is done for each series by dividing the indexes by the index value for the base period and then multiplying the result by 100. (For this and following steps, note the detailed example at the end of this report.)
- (v) Then derive values for the composite index by multiplying relative weights by the rebased index values for each index series and summing the results. (This calculation must be done for each quarter, or other time period, needed for determining the current adjustment.)
- (vi) Using the composite index created in step (v), calculate the current adjustment in standard fashion, that is, by using the procedure described in (a) above. (See example clause II for an illustration of this procedure.)

(e) Limits for price adjustment.

Escalation clauses sometimes contain a *floor*, a *ceiling*, or both, to limit the total price adjustment during the life of the contract. If the upper or lower limit is reached, the parties may renegotiate prices for the duration of the contract. Some contracts specify that no price adjustments are to be made until a minimum

change in the selected index has taken place. Contracts may also provide that an escalation is to apply in both an upward and downward direction, or in one direction only.

Examples of Escalator Clauses

Example clause I. Collective bargaining agreements

Suppose a collective bargaining agreement contains the following language:

"For years two and three of this contract, on July 1 of each year, basic hourly wage rates for each step and grade will be adjusted by the percentage change in the Employment Cost Index for private industry workers, wages and salaries, from March of the prior year to March of the current year. That is, the increase to go into effect on July 1, 1994 will be the increase in the ECI series between March 1993 and March 1994, while the increase to go into effect on July 1, 1995 will be the increase in the ECI between March 1994 and March 1995."

Assume that in June 1996 wage rates for three occupations were as follows:

Carpenters	\$15.42
Janitors	7.45
Truckdrivers	14.00

Assume that the ECI private industry wages and salaries index for March 1995 is 125.0 and for March 1996 is 129.0. Then the adjustments would be $129.0/125.0=1.032$

\$15.42	*	1.032	=	\$15.91
7.45	*	1.032	=	7.69
14.00	*	1.032	=	14.45

Example clause II. Long-term sales or purchasing contracts

Suppose a manufacturer of widgets enters into a long-term sales contract with a customer. The buyer and the seller agree to include an escalation clause which will adjust the selling price once a year to account for changes in labor and material costs. The following is an example of the terms which might be incorporated into such an escalation clause.

A. The base selling price for a lot of 10,000 type A widgets is set at \$768,450.00 as of December 1989, to remain in effect for 1 year. December 1989 is hereafter called the reference base period.

B. The base selling price shall be adjusted in accordance with the percent changes of the special index which is described in (D) below. The special index shall be derived from the following index series:

- (i) **The Employment Cost Index for total compensation, durable goods manufacturing, not seasonally adjusted**, as it appears in the periodical *Monthly Labor Review* as published by the U.S. Department of Labor, Bureau of Labor Statistics; this series shall be referred to as the labor index;
- (ii) **The Producer Price Index for special industry machinery and equipment, commodity code 116, not seasonally adjusted**, as it appears in the periodical *PPI Detailed Report* as published by the U.S. Department of Labor, Bureau of Labor Statistics; this index shall be referred to as the materials index;

and
 (iii) **The Producer Price Index for 2 diesel fuel**, commodity code 057303, not seasonally adjusted, as it appears in the periodical, *PPI Detailed Report* as published by the U.S. Department of Labor, Bureau of Labor Statistics; this index shall be referred to as the fuels index.

C. The selling price shall be adjusted on February 20 of each subsequent year, based upon the percent changes (whether up or down) in the special index specified below, between the reference base period December 1989 and December of the most recent year. All calculations for the special index shall be based upon the most recent official data released by BLS of the Producer Price Index and Employment Cost Index, as of February 20 each year.

D. The special index shall be derived in the following manner:

(i) The values for the current

period for each of the three BLS index series specified in (B) above shall be rebased to the reference base period December 1989; this shall be done by dividing the current value of each index by its value for the reference base period, and then multiplying the result by 100.

(ii) The rebased labor index shall be assigned a relative weight of forty (40) percent; the rebased materials index shall be assigned a relative weight of forty (40) percent; the rebased fuels index shall be assigned a relative weight of twenty (20) percent; these relative weights represent the base period of December 1989.

(iii) Multiply the rebased current value for each of the three indexes by its relative weight.

(iv) The sum of these three figures shall be the value of the special index for the current time period.

(v) Multiply the current value of the special index by the original base price, and

then divide by 100; this final figure shall be the adjusted price for the current time period.

E. If December ECI data are not available for any year, the ECI for the immediately preceding September shall be used as the basis for adjustment of the labor index. If December PPI data are not available for any year, the PPI data for the immediately preceding November, October, or September, whichever is the most recent month which has published data, shall be used as the basis for adjustment of the materials and fuels indexes. If no ECI or PPI data have been published for these months, then the contracting parties shall agree upon substitute series by February 20.

With these terms in effect, table 1 shows some hypothetical data and calculations which might have been made on February 20, 1991 to determine the new selling price for a lot of 10,000 type A widgets as of December 1, 1990.

Table 1. Example of calculation procedures

	Labor	Materials	Fuels	Composite
Base price = \$ 768,450	-	-	-	-
Current period series values (Dec. 1990)	107.2	133.4	91.0	-
Divide by base period values (Dec. 1989)	102.2	128.6	68.5	-
equals.....	1.049	1.037	1.328	-
Multiply by 100 to yield converted series	104.9	103.7	132.8	-
Multiply by assigned weight (labor 40%, materials 40%, fuels 20%)	41.96	44.48	26.56	-
Add the three figures to get the current value (Dec. 1990) for special index	-	-	-	110.0
Multiply by original base price (\$768,450)	-	-	-	\$84,529,500
Divide by 100 to yield the adjusted price	-	-	-	\$845,295

Appendix. An Illustration of the Effects of Fixed Weights

The following example illustrates the effects of using fixed rather than current weights. Consider the case of an employer with two types of workers, electricians and janitors. In March 1994, the firm employed 10 electricians at \$10 per hour and 10 janitors at \$5 per hour. Both the average hourly wage and the wage rate are \$7.50, calculated as follows:

	<u>NUMBER X WAGE RATE = AGGREGATE</u>		
Electricians	10	X	\$10.00 = \$100.00
Janitors	10	X	5.00 = 50.00
	20		\$150.00

Average wage rate: $\$150.00 / 20 = \7.50

In March 1996, both groups were given a 10-percent wage increase, but only five janitors were employed. The average wage (without fixed weights) increased to \$9.17:

	<u>NUMBER X WAGE RATE = AGGREGATE</u>		
Electricians	10	X	\$11.00 = \$110.00
Janitors	5	X	5.50 = 27.50
	15		\$137.50

Average wage rate: $\$137.50 / 15 = \9.17

Average wage change: $\$9.17 / \$7.50 = 1.223$, or a 22.3-percent increase

The increase in the average wage reflects the 10-percent increase in the wage rates and the relative decrease in the number of workers in the low-wage occupation of janitor.

But when fixed employment weights are used (that is, the number of janitors remains fixed at 10), the *average change in wage rates* is calculated, not the change in the average wage.

	<u>NUMBER X WAGE RATE = AGGREGATE</u>		
Electricians	10	X	\$11.00 = \$110.00
Janitors	10	X	5.50 = 55.00
	20		\$165.00

Average wage rate: $\$165.00 / 20 = \8.25

Wage-rate change: $\$8.25 / \$7.50 = 1.10$, or a 10-percent increase.

In this case, the increase is 10 percent, the size of the wage-rate increase which was granted to both occupations.

—ENDNOTES—

¹ For a description of how the ECI is compiled, see "The Employment Cost Index," *BLS Handbook of Methods*, BLS Bulletin 2414, 1992, chapter 8.

² Only workers in private households and agricultural establishments are excluded.

³ To obtain ECI data, contact the Inquiries and

Correspondence Office at any BLS Regional Office, or call the Division of Compensation Data Analysis and Planning at (202) 606-6199.

⁴ See G. Donald Wood, "Estimation Procedures for the Employment Cost Index," *Monthly Labor Review*, May 1982, pp. 40-42.

⁵ Standard errors for published ECI series may

be found in *Employment Cost Indexes and Levels, 1975-95*, BLS Bulletin 2466, 1995, pp. 137-143.

⁶ See Albert E. Schwenk, "ECI Rebased to June 1989," *Monthly Labor Review*, April 1990, pp. 38-39.