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A NEW "CONTINGENCY" — CONSUMER PRICE INDEX

by John H. Biggs

The Consumer Price Index (CPI hereafter), prepared monthly by the Bureau of Labor Statistics is a new element in the work of many actuaries, and change in the index is a new contingency which they must confront. Some collective bargaining agreements have provided "indexed" wages for many years—approximately two million workers now have wages directly tied to the CPI. The technique is not new, but an agreement is periodically renegotiated, giving both parties a chance to review and revise their understanding. The more widespread use of the CPI in long-term agreements, such as pensions and insurance plans, is relatively new.

Assuming it has been settled that an index is to be included in a financial agreement (that is, all the difficult questions of philosophy, cost and funding are out of the way), the following are some of the practical questions that an actuary might raise concerning the CPI:

1. *What does the CPI measure?* The CPI seeks to measure the change in cost-of-living for urban clerical workers and wage earners. It is not expected to apply to high salaried individuals (such as managers and professional workers), farmers and *retired* employees. The CPI registers the change in relative cost for a "market basket" of goods representing the typical purchases of the covered group. And this "market basket," which defines the internal weights of the index, is revised periodically to reflect changing family budgets—for instance, less and less proportionately is spent on food as average incomes rise. In its simplest form—without the many correcting adjustments of the actual calculation—the index for any month i, with a base period o, is

$$I_{i:o} = \frac{\Sigma(q_o p_i)}{\Sigma(q_o p_o)}$$

where q represents the weighting for the specific consumer item,

$$\Sigma q = 1$$

and p represents the price. The q's are revised about every 10 years. Since the index is prepared regionally, geographical population weighting to construct the national index is achieved by using the most recent decennial census.

2. *Is the CPI appropriate for the contract involved?* Doubts have been expressed as to whether the CPI should be used to measure the buying power of retired employees. Consequently, the Bureau of Labor Statistics has been urged to prepare a new index specifically aimed at pension benefits.

Retired employees have little or no direct representation in the index derivation, since the family head must be a wage earner. Inconsistencies between active and retired persons exist. For example, one of the fastest rising components of the index is medical care, yet for retired employees the rate of increase in medical cost has been damped by Medicare. (The difference this one item makes can in part be seen by comparing the March 1968 CPI for all items—119.5—with that for all items *less* medical care—118.1.)

Nevertheless, retired people still have some inflationary medical care in their "market baskets," witness the rise in the Part B monthly premium by 33%, from $3 to $4. Other items probably offset the Medical care component, so that possibly a "Retiree Cost-of-Living Index" would not in fact be very much different from the present index. And it is doubtful if any pension plan can so precisely define the "right" benefit level so as to make such a careful measurement of cost-of-living changes meaningful.

Presumably, objections would be raised to use of the CPI for other types of contracts. For instance, does the "market basket" of a disabled employee or a widow receiving life insurance benefits contain the same goods as the basket of the Bureau of Labor's composite urban wage earner or clerical employee? It seems in these instances that the CPI satisfies the cost-of-living income maintenance objective far more accurately than could the original benefit plan possibly satisfy its replacement of earnings objective.

Another refinement, often made in wage and rent contracts, is to use a city index rather than the national CPI. The Labor Department publishes either monthly or quarterly an index for each of the 22 cities with a population of over one million in 1960. Thus a pension plan with all employees in one metropolitan area could tie its benefit directly to that city's index. This refinement could produce problems when the more widely publicized national index is moving up but for some reason that city's is going down. (The city dweller will read the newspaper and take notice of the national change but probably cannot measure with much real accuracy from month-to-month, or even year-to-year, the change in price of his own purchases.)

Before doubting the applicability of the basic national index, it may pay to consider how vague is the concept of "preserving purchasing power." For instance, is it intended to protect the retired from changes in federal and state income tax levels? The CPI excludes all such changes, but does reflect other tax changes.

3. *Is the CPI permanent? What risks are there in putting it in a contract of many years duration?* The index has been calculated since 1919 and is the subject of a surprisingly massive scholarly literature and also of considerable interest to many rank and file union members. The government knows full well that it is embedded in many wage and rent contracts and that any arbitrary changes would be unthinkable.

Although weightings of the index have been revised about every 10 years to reflect the new market basket continuity has been carefully preserved through each change by a "chaining" technique. The base period reference (currently using an index value of 100 for the average index over the 3 years 1957-59) is merely a device to make the index easy to read in current times. The index is actually continuous back to its original establishment with only the internal weightings by market basket and population changing.

Thus it would seem safe to include it with no provision for change. However, few contract writers like to leave such a possibility open; hence it may be desirable to state a "referee" in the event the index changes or disappears. The referee might be the Bureau of Labor Statistics, one of the parties to

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Consumer Price Index

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the contract, a State Insurance Commissioner or even the dean of a local business school.

4. *When is the index published and how is it made available?* Shortly after the 25th of every month you will see a newspaper article (in recent months usually a first page headline) about the Bureau of Labor Statistics release on the cost-of-living. This monthly news release is scheduled for the 25th of each month and sets out the calculation for the previous month. Interested parties can be put on the mailing list for this news release. (Note that the index represents a full calendar month—it is not as of the first, 15th or last day of the month, rather it represents the price level during the entire month.) Thus on or about June 25 a release will be made describing the results of the calculation for the month of May.

And that announcement is "final" (unlike the wholesale price index which is subject to later adjustment). Most plans base benefits in one month on the index for three months earlier, which means the May index, announced on June 25, will determine August benefits.

This procedure has been criticized as being insufficiently current. In the usual situation of once-a-year pension benefit changes this is not a significant problem since the change in the index over 12 months can be used—*i.e.*, from 15 months prior to change date to three months prior. The only error possible would be due to acceleration or deceleration of inflation, and even that would be temporary.

5. *What are the limitations of the CPI?* The Labor Department is careful to describe the possible sampling errors and the difficulty in keeping quality, as opposed to price, changes out of the index. Seasonal price changes are not eliminated from the basic national index, although certain seasonally adjusted index information is published. Such seasonal changes appear to be relatively minor.

The reporting of prices is subject to error. There is a great deal of careful research in all of these areas aimed at better achieving the price measurement goal of the index. Actuaries interested in this aspect of the CPI can obtain many weeks of reading matter from the Labor Department—mostly articles from the *Monthly Labor Review*.

6. *How should the index be expressed in a contract?* Some of the contract problems have already been touched on, *e.g.*, a three-month lag is probably needed before using the index, the revision contingency should be allowed for. And it may be desirable to change the benefits just once a year, if the seasonal variations in the index are a concern. One can refer to the index for a certain month or the average for a year. A complete identification of the index is "The Consumer Price Index, All Items, U. S., 1957-59=100" with the reference to the '57-'59 base identifying the numerical basis for the contract.

Many wage contracts relate so many cents per hour to a point change in the index. However, most benefits being considered by actuaries would probably apply the percentage change in the index over a period to the old benefit in order to compute the increase or decrease. A multitude of limitations on benefit changes are possible, such as corridors before a change is made, maximum limits on changes year-by-year or over a span of years, putting a floor under the benefit.

In summary, we can probably define the CPI change "contingency" better than many others we deal with. The Bureau of Labor Statistics is likely to be more consistent in its computation of the CPI than, for example, our courts will be in giving a uniform interpretation to disability definitions. The CPI is carefully prepared to reflect price changes for the largest population group and can be used for segments of that group or for others with reasonable confidence that it will satisfy our objective of relating benefits to prices. □

Evaluations

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most vital determinant of success or mediocrity is the behavior of the moderator. He must be forceful without giving offense. He must have a clear plan. He must be jealous of time so that the advertised segments of the topic all get their fair share. He must have the moderator's equivalent of the physician's bedside manner. □

LIAISON COMMITTEE ON MORTALITY STUDIES

One of the recommendations of the Klem Committee was that the Society establish a more formal relationship with the Association of Life Insurance Medical Directors.

The cost of current mortality investigations within the industry has caused the actuaries and the medical directors to hesitate before embarking upon any medical impairment studies. New methods must be devised within the industry and new sources of information sought without the industry.

To these ends a new Liaison Committee of the Society and the Association will devote its energies. The Committee members are: for the Association — Drs. Richard B. Singer, Richard A. Nelson, Paul S. Entmacher; for the Society — Alton P. Morton, Joseph B. Crimmins, and Edward A. Lew. This committee will have the responsibility of initiating future impairment studies and supervising their completion. □

CONSULTING ACTUARIES FORM INTERNATIONAL ORGANIZATION

Consulting actuaries from ten countries met in Munich, Germany, on June 13 and formed the International Association of Consulting Actuaries (IACA).

Geoffrey Heywood (Great Britain), James Hamilton (U.S.A.) and Maxwell Lander (Great Britain) were elected Chairman, Vice-Chairman and Secretary-Treasurer, respectively. The Executive Committee of IACA is comprised of Preston C. Bassett (U.S.A.), J. A. T. M. Brans (Netherlands), John A. Carson (South Africa), Henry G. Devitt (Canada), Georg Heubeck (Germany), Carroll E. Nelson (U.S.A.) and R. C. Palmer (Australia).

The purpose of the new organization is to facilitate the exchange of information and views among members on matters affecting their professional responsibilities as consulting actuaries.

Among the subjects discussed were: the relative roles of the actuary and the accountant in pension fund work; the integration of occupational pension plans with state or government statutory pension arrangements; and the speed and method of funding occupational pension plans. □