Employment Cost Index: a measure of change in the 'price of labor'

New statistical series will, when completed, provide comprehensive data on changes in the rate of hourly compensation

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WITH A GROWTH of sophistication in statistical analysis, data users are coming to recognize that their conclusions may depend upon which statistical series they choose to look at. Several alternative series may be available for a particular analysis, and they may not always give consistent signals. Such inconsistencies are not an indictment of the available data, but rather an indication that, because of new needs, existing series are often put to uses for which they were not designed.

In the wage measurement field, existing series are inadequate for comprehensive analyses of employee pay changes over time.[1] All major compensation series have recorded pay gains over the long run, but they have often shown different rates of increase, particularly over phases of the business cycle.[2] In addition, most series are quite limited in the types of compensation, industries, and classes of workers covered; published detail may be limited; and, of primary importance, key existing series are often difficult to interpret as measures of change.

The Bureau of Labor Statistics' new Employment Cost Index should help meet these problems by providing a measure of variations over time in the prices paid by employers for labor services. The new index, which will be released in its initial form in 1976, will present changes in the price of a standardized mix of purchased labor services, much as the Consumer Price Index presents changes in the price of a standardized "market basket" of consumer goods and services.[3]

In recent years, inflationary trends in the economy have heightened the interest of economists and policymakers in trends in compensation, and particularly in the relations between pay changes and shifts in other economic variables such as the price level, productivity, employment, and unemployment.[4] Numerous studies have focused on supply and demand conditions in the labor market and their effect on the "price of labor" that employers, workers, and unions find acceptable as part of the terms and conditions of employment. These interests have created a demand for a statistical series to show how the price of labor varies over time in response to changes in the economic environment.

Because no comprehensive series of this type currently exists, analysts have relied upon movements of average hourly earnings. Although such data are timely and provide considerable industry detail, they are not adequate indicators of changes in the price of labor. Derived by dividing employer payroll outlays by aggregate hours paid for, hourly earnings averages are influenced not only by rates of pay but also by overtime and other premium-paid work, the industrial and occupational composition of the work force, and incentive pay plans. Moreover, the data are limited to production and nonsupervisory workers and generally exclude employer outlays for fringe benefits.[5]

The Bureau's recently developed Hourly Earnings Index gives a closer approximation of underlying wage-rate movements because it results from adjusting average hourly earnings data to exclude the effects of fluctuations in overtime premiums in manufacturing (the only sector for which overtime data are available) and shifts in the proportion of workers in high- and low-wage industries. The Hourly Earnings Index has been widely used since its introduction, but it is far from an ideal measure of change in compensation cost. (Exhibit 1 compares key features of BLS pay series.)

The new series

The Employment Cost Index is being developed to meet this need for a timely, more accurate, and comprehensive measure of changes in the price of

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labor, which is a key determinant of changes in the demand for labor, in production costs, and thus in product prices.[6] Its survey design and conceptual framework have been developed with various economic analyses concerning pay changes and other variables in mind.

Establishments of all sizes and in all civilian industries are within the scope of the survey, which will cover all levels of workers, supervisory and nonsupervisory. It will exclude only the self-employed, proprietors, unpaid family workers, and owner-managers.

The working definition given to the price of labor is also comprehensive—employer expenditures per hour worked for obligations incurred in employing labor; in short, the compensation package. (See the appendix for a discussion of the reasons for and implications of this definition.) Outlays for fringe benefits are included along with those for wages and salaries.

Basically, the Employment Cost Index will provide an overall measure of compensation change in which the behavior of individual components—hourly employer expenditures to or on behalf of workers in specified occupations within individual establishments—are incorporated with relative employment weights. The index will express the average price of labor in a given period in relation to a base period with a base price of 100. To minimize the effects of shifts in employment, fixed (base period) weights will be used in combining individual observations.

In essence, the Employment Cost Index will measure changes in the transactions price in the labor market, using standardized occupational units of observation. To maintain or expand the size of its labor force, a firm must offer, on the compensation side, a package of wage rates and supplementary benefits sufficient to attract qualified workers for specific jobs. When workers are hired, an employer

Exhibit 1. Selected characteristics of BLS measures of change in hourly compensation

Characteristic	Employment Cost Index (when completed)	Average hourly earnings	Hourly Earnings Index	Compensation per man-hour	Changes effective in major collective bargaining units	
					Wage-rates only	Wages and benefits
Data published	Index	Level data	Index	Index	Cents per hour and percent change	Percent change
Frequency of publication	Monthly	Monthly	Monthly	Quarterly	Quarterly	Annually
Date of commencement	December 1975 [1]	1964	1964	1947	1959—(annually) 1973—(quarterly)	1968
Industrial coverage	Total civilian economy	Private nonfarm economy	Private nonfarm economy	Total civilian economy	Private nonfarm economy	Private nonfarm economy
Workers included	All employed workers	Production and nonsupervisory workers	Production and nonsupervisory workers	All workers	Production and nonsupervisory workers in bargaining units with 1,000 workers or more	Production and nonsupervisory workers in bargaining units with 5,000 workers or more
Payments included	Wages and salaries plus employers' contributions for social insurance and private benefit plans	Wages and salaries	Wages and salaries	Wages and salaries plus employers' contributions for social insurance and private benefit plans	Wage rates	Wage rates and private supplementary benefits
Effect of shifts in employment among industries.	Excluded	Not excluded	Excluded at 3-digit SIC level of detail	Not excluded	Excluded	Excluded
Effect of shifts in employment among occupations	Excluded at 3-digit Census occupational level of detail	Not excluded	Not excluded	Not excluded	Excluded	Excluded
Data source	Statistical survey	Statistical survey	Recomputation of data collected for measuring average hourly earnings	Compensation data essentially from National Income Accounts. Corresponding man-hours estimated within BLS	Developed largely from secondary sources	Developed largely from secondary sources

[1] Quarterly index of wage and salary change in the private nonfarm sector, excluding households.

incurs an obligation to meet the cost of the compensation package. The price of labor is thus the cost to the employer of that package per hour worked. The change in the price of labor is the period-to-period shift in the cost of the compensation items—that is, the hourly employer obligations. The standardization issue in index number construction is to hold constant the set of jobs priced so that measured cost changes are not affected by shifts in relative occupational employment weights.

Such a measure reflects an important input into employer hiring and pricing policies. However, it does not directly reflect changes in unit production costs. An increase in compensation rates may result in a decision to contract out work or in the substitution of a different type of labor or of machinery for labor, all of which affect production costs per unit of output. The new series will be a measure of price changes in the sense that the CPI measures changes in prices of specified goods and services, rather than the cost of living.

Wage and salary changes

The unit of observation for wage and salary changes will be an occupation in a specific establishment. Since pay rates are generally set for the jobs performed rather than for the people filling them, the occupation level seems most appropriate for observing rate changes.

The Employment Cost Index will use the census occupational classification system's three-digit code level of detail (accountants, carpenters, and so forth); this classification system encompasses all specific jobs in the economy within 441 occupations. These occupations, though broader in scope than those studied in other BLS occupational wage surveys, can be defined within specific establishments.[7]

For each surveyed occupation within an establishment, average straight-time hourly earnings will be obtained for the pay period encompassing or closest to the 12th of the survey month. Straight-time earnings are defined as total earnings before deductions, excluding premium payments for overtime, weekend, holiday, and late-shift work. They include production bonuses, commissions, and cost-of-living allowances. Earnings of salaried employees and those paid under incentive wage systems will be converted to an hourly basis.[8]

To eliminate the influence of employment shifts among occupations, establishments, and industries, the reported occupational earnings data will be averaged using constant (base period) weights for each unit.[9] This process provides a comprehensive measure of wage change which, for many purposes, is far more satisfactory than those currently available. Moreover, since the occupations studied are not limited to production and nonsupervisory workers, the index will be more comprehensive than most other available series.

The resulting measure is not an index of pure wage-rate change, however. Turnover of workers in specific occupations, length of service or merit pay increases, and shifts in the relative importance of individual company jobs falling in a survey occupation will also influence the result. (See appendix.) Unlike the CPI, the Employment Cost Index will not initially be adjusted for the impact of "quality" changes. Long-run improvements in the quality of labor are of undoubted importance. However, such quality increases are associated more with movements among occupations (which are accounted for) than with increased proficiency in the same occupation.

The prime mover of the Employment Cost Index will undoubtedly be changes in wage rates, however, and for most purposes movements in the index can be regarded as indicating movements in wage and salary rates. Moreover, as data on occupational employment patterns increase, the index may be focused on more narrowly defined jobs, thereby limiting the effects of factors other than wage-rate changes.[10] While such a finer job classification system would be preferable, the information necessary for selection of a probability sample now exists only with reference to the census classifications.

To enhance homogeneity within individual occupations in establishments, where both part- and full-time workers are found in an occupation, only the larger group will be studied. A similar approach will be followed where both time and incentive workers are in a single occupation within an establishment.

This approach to measurement was arrived at only after careful consideration and rejection of alternative techniques. For example, the Bureau now directly measures general wage-rate changes for production and related workers in manufacturing industries. At first glance, it might appear that this procedure would be desirable for the Employment Cost Index. The fatal problem, however, is that—particularly in nonunion, white-collar employment—

many "true" wage-rate changes are made on an individual employee basis and thus would go undetected in a survey of general wage changes.

An intriguing alternative index involves the measurement over time of the pay received by a fixed sample of workers.[11] The resulting measure would indeed be valuable in studies of longrun economic growth, particularly as it relates to worker welfare. In this context, the measure would be most useful if it took account of all wage adjustments accompanying workers' job changes. On the other hand, the Employment Cost Index's price-of-labor concept dictates a considerably more limited inclusion of wage adjustments, one that would be extremely difficult to implement in a survey of a fixed panel of workers.

Benefit changes

The Employment Cost Index initially will be limited to average straight-time hourly earnings. The Bureau plans to expand the index, within a year after all participating establishments have been initiated into the survey, into a measure of change in total compensation by adding data on costs incurred by the surveyed employers for supplementary benefits.

The procedures for implementing benefit data have been developed in relation to the price-of-labor concept underlying the index and the meaning of changes in that price. Moreover, the techniques have been evaluated in terms of their suitability with respect to ease of data collection and processing.

To combine individual benefit practices with wage rates in a measure of total compensation, it is necessary to find a common denominator. This could be a subjective measure of worker satisfaction or an objective measure of employers' outlays or workers' receipts. The objective approach, of course, is to be preferred from the standpoint of data collection. The Employment Cost Index will emphasize employer expenditures for purchased labor services rather than worker receipts (discussed in the appendix) because the determination of employer costs is more meaningful in terms of a price-of-labor construct, considering the uses to which the statistical series is likely to be put.

Since benefit costs may change even if the underlying practices do not—for example, vacation costs normally will increase if the average length of service of a company's work force increases, even with no change in vacation schedules—it becomes necessary to define precisely those expenditure changes which are to be reflected in the index. The Employment Cost Index approach is to measure changes in hourly cost obligations within standardized units of observation. Although the impact of employment shifts among occupations will therefore be eliminated, changes in the rate of employer expenditures within occupations (reflecting such developments as new benefit policies and shifts in insurance premiums, tax rates, and actuarial considerations in pension funding) will be measured. The index will exclude year-to-year fluctuations in employer payments for pension programs which are independent of actuarial factors, since these fluctuations are not related to obligations incurred in hiring.

Essentially, the data collected will be (1) base period employer expenditures for each benefit per hour worked [12] and (2) changes in these expenditure rates which are related to changes in individual benefit practices and other matters—such as insurance premiums—which may appropriately be considered changes in the price of labor. Expenditures in the base period will be developed from accounting records if available (essentially as is now done for the Bureau's surveys of employee compensation and payroll hours) or through standardized cost-estimating formulas applied to individual benefit practices. The effects of changes in benefit practices and other developments will be reported when the cost obligations are first incurred (not, for example, when they are agreed upon in collective bargaining).

This approach cannot detect changes in the price of labor which occur gradually and in almost imperceptible amounts, such as vacation cost changes associated with changes in worker seniority. Yet since these changes appear relatively minor, the index will still provide a reasonably close approximation of the ideal series.[13]

Unlike pay rate information, data on benefits are not always available from employers for each occupation. Thus, costs for such benefits as pensions and insurance programs will commonly be collected in plant and office or similar groupings. These cost levels will be used for imputing to occupations benefit expenditures which can be combined with straight-time hourly earnings data. (These estimates will reflect whether expenditures for individual benefits are related to wage and salary levels in each group.) Benefits to be studied will essentially be those in the Bureau's surveys of employee compensation and

payroll hours, including premium pay, pay for leave, savings and thrift plans, and employer expenditures for retirement, life insurance, unemployment, and health programs.

A measure of change in total compensation cost rates must also take into account the impact of wage-rate changes on the cost of wage-related benefit practices. The Employment Cost Index will account for such "creep" or "roll-up" on the basis of materials collected for the direct measurement of wage and benefit changes.

Although these procedures differ from the normal BLS approach to data collection—reliance on payroll or strict accounting records—the Bureau believes that they can be successfully implemented, particularly with larger firms. These techniques have been used extensively by employers, unions, and the Bureau itself in pricing collective bargaining settlements and were applied during the Economic Stabilization Program for completing Pay Board reporting forms.

Sample design

Earnings data for the private nonfarm sector excluding households—the initial sector to be studied —will be obtained from a probability sample of both establishments and occupations.[14] The approximately 2,300 establishments in the study have been selected to represent the complete range within its scope. Earnings data will be obtained for 1 to 23 occupations per establishment; the average is 10.

Ability to produce meaningful data from a sample of this size is related to the two-phase sampling procedure which has been employed. The 2,300 establishments and the occupations within them were selected on the basis of a 1974 survey of 10,000 establishments in which employment information was obtained for 23 of the 441 occupations in the 1970 Census of Population. Separate occupational samples were selected within each of the 62 (essentially 2-digit) SIC industry groups studied. Within each of these 62 industry groups, 5 certainty occupations were selected on the basis of their numerical size and 18 others (2 per occupational group) were selected by probability means.[15]

Information from the 1970 Census of Population provided a basis both for the selection of a sample of occupations and for weights for a Laspeyres (base weight) index. However, such data dictated the use of fairly broad occupational units of observation. As already noted, narrower units would be preferable, but the required information on overall employment patterns does not exist on a finer occupational basis. Nevertheless, the survey design is flexible; narrower occupational groupings can be adopted if the necessary employment data become available.[16]

Uses and limitations

A meaningful statistical series can be developed only if the perceived needs of data users are kept clearly in mind. The Employment Cost Index has been designed to measure changes in the basic transactions price in the labor market, defined in a manner appropriate to economic analyses of changes in compensation, employment, productivity, and prices. Together with associated subindexes, the new series should also be valuable in studies of labor market behavior such as investigations of labor mobility and may aid in reviewing pay trends in individual wage-determination units.

Nevertheless, it is impossible to know beforehand all the specific uses to which a new statistical measure will be put. Supply has a way of creating demand. Although analytical potentials must be emphasized in the development of a series, the ultimate uses will be determined by emerging needs and by the resourcefulness of the users, as well as by the special characteristics of the new measure. We cannot anticipate, except in a general way, these projected needs and resourcefulness; we can, however, point out the potential provided by the index's characteristics.

The Employment Cost Index will be a relatively pure measure of compensation-rate change suitable for use in analyzing the relations between movements in the price of labor and changes in the economic climate. When the series is finally developed there will be available for the first time a comprehensive and timely measure of changes in compensation, capable of internal analyses and free of much of the influence of employment shifts. The Employment Act of 1946 committed the Federal Government to a policy of establishing and maintaining a high level of production and employment. Government policymakers require timely and comprehensive data on economic activity to carry out this responsibility. Such data are now available on employment, prices, and production; the Employment Cost Index will provide similar data on compensation.

The new index may also replace existing wage

series in many econometric models. Existing measures are not as complete, timely, or accurate as the Employment Cost Index, and they may be conceptually inappropriate. Approximations of the new series are already being used in some models with significant improvements in the results. To the extent that the relationships among pay changes and other economic variables are better explained by the new index, it will replace existing measures, thereby improving our understanding of the way economic variables interact.

The index may also be used as background information in formulating wage decisions (in collective bargaining and elsewhere), in developing national manpower policies, in company planning (such as where to locate or expand operations), and in other circumstances where less satisfactory measures are now employed. Employment cost subindexes for industrial, regional, and occupational groupings will be especially valuable for such uses. And, of course, unforeseen uses will doubtless develop. Experience with other measures is suggestive. For example, indexes are often used as escalators—the CPI is used to escalate wages, rents, and pensions, and other indexes to escalate costs, particularly in long-term contracts. Indexes are also used to move or update other measures for which timely data are not available. Because of the time lag between data collections, for example, data from the BLS Industry Wage Surveys are not always current; certain types of wage data might be updated with the Employment Cost Index.

The Employment Cost Index has been designed to permit analysis of its data in conjunction with the results of BLS occupational wage surveys to illumine relationships between developments at the micro and macro levels. Such examinations are important to the study of compensation both in individual labor markets and at the overall level. In this regard, the new index should be seen not as an independent addition to an already extensive body of existing information on compensation, but rather as the keystone to a comprehensive and integrated structure of occupational wage data.[17]

The new index should not, however, be regarded as an all-purpose tool. As a close approximation of changes in the price of a standard unit of labor services, it does not directly measure changes in worker income or wage and salary flows in the economy. For such purposes, existing measures such as average weekly and hourly earnings, which are affected by fluctuations in the workweek, premium-paid hours, and employment shifts, are clearly appropriate.

The Employment Cost Index will not measure *levels* of compensation. Although computed from data on pay levels, the statistical design yields meaningful information only on *changes* in compensation. Furthermore, it does not cover the total cost of employing labor. Hiring and training costs, among others, are excluded; the index also controls for the types and amounts of labor inputs, which naturally affect total employment costs. Finally, the index by itself would be an unsatisfactory measure of worker well-being, since it does not take account of changes in price level and employment conditions.

More generally, the new series will not fill all unmet needs in the wage field. For example, it would be desirable—if resources were available and adequate techniques could be developed— to produce a series tracing compensation of a fixed panel of workers.

Publication plans

The publication goal for this index is to produce a monthly series, with data released 2 months after the reference payroll period. Initial publication is scheduled for early 1976, when data for the October 1975 base period (set equal to 100) and for December 1975 will be released. At first, the index will be limited to changes in straight-time hourly earnings, and will be produced on a quarterly basis. At its inception, it will cover the private nonfarm sector, excluding households. Under current plans, collection of fringe benefit information for the private nonfarm sector will begin during 1976. In later years, the index will be expanded to cover the total civilian economy on a monthly basis.[18]

In addition to the overall index, the Bureau will prepare subindexes as indicators of developments within various sectors of the economy. Indexes will be provided for the major industry divisions, for major occupational groups, and for the major geographic regions.[19] In addition, separate measures are planned for union and nonunion establishments and for metropolitan and nonmetropolitan areas. The initial sample size will not be sufficient to produce all this detail, but plans call for sufficient expansion to accomplish it. After the necessary information is collected, separate indexes will be provided for total compensation and straight-time earn-

ings. Cross classifications are not envisaged.

These subindexes will reflect the complex wage structure and wage-determination mechanisms in the economy. The subindexes will help explain the behavior of the overall measure and, in addition, will be important in themselves in analyses such as those concerning the transmission of wage influences from one labor market to another and the role of wages in allocating labor. □

FOOTNOTES

[1] See Norman J. Samuels, "Developing a general wage index," *Monthly Labor Review,* March 1971, pp. 3–8.

[2] For example, although the rate of increase in average hourly earnings of manufacturing production workers was somewhat greater between December 1971 and December 1972 than during the same period a year earlier (7.3 percent compared with 6.6 percent), general wage-rate adjustments effective in 1972 were, on the average, considerably below those of the preceding year (5.1 percent in 1972 and 6.4 percent in 1971).

[3] The parallel between the Consumer Price Index and the Employment Cost Index is basically in the standard approaches to measuring price changes through the computation of index numbers. When matters of detail are considered, numerous differences between the two indexes become apparent.

[4] For instance, the development by the Pay Board in late 1971 of a basic 5.5-percent lid on permissible annual increases in the rate of compensation was an effort to hold money wage gains to a rate consistent with a 3-percent annual gain in productivity and a 2.5-percent annual rate of advance in prices.

[5] Hourly earnings data are of course quite important as measures of the level of employee earnings and of industrial and geographic differentials in that level. The problem of analyzing average hourly earnings data is considered in John T. Dunlop, *Wage Determination Under Trade Unions* (New York, Augustus M. Kelley, Inc., 1950), pp. 19–27. See also Victor J. Sheifer, "The relationship between changes in wage rates and in hourly earnings," *Monthly Labor Review,* August 1970, pp. 10–17.

[6] During World War II, the Bureau produced a somewhat similar measure, the Urban Wage Rate Series. See "Wartime Wage Movements and Urban Wage-Rate Changes," *Monthly Labor Review,* October 1944, pp. 684–704.

[7] Data collection is currently limited to the private nonfarm economy, excluding households. Within this sector, earnings data are being limited to cash wages and salaries. Inclusion of perquisites and payments in kind will be considered when the project expands to include agriculture.

[8] Conversion of weekly or monthly salaries to hourly equivalents is based upon the standard weekly hours for which the employee receives his or her regular straight-time salary.

[9] The Employment Cost Index approach has been incorporated in the Bureau's area wage survey program. See James N. Houff, "Improving area wage survey indexes," *Monthly Labor Review,* January 1973, pp. 52–57; and Deborah B. Talbot, "Improved area wage survey indexes," *Monthly Labor Review,* May 1975, pp. 30–34.

[10] Company job titles or workers will be sampled in instances where a survey occupation encompasses a substantial number of workers or specific jobs in an establishment.

[11] Professor Richard Ruggles of Yale University has proposed such an index in discussions with the Bureau. If it were practical to meet data needs for the Employment Cost Index through a fixed sample of workers within selected establishments, a single data collection program could provide inputs for that index and the alternative (fixed sample) index discussed in the text. Furthermore, the materials on individual workers would help to explain movements in the Employment Cost Index.

[12] In keeping with practices in other surveys, the Employment Cost Index defines hours worked as plant hours—that is, coffee breaks, washup time, and so forth are included in working time.

[13] Normally the effects of worker turnover are not all in one direction and will tend to average out. A separate paper giving detailed treatment of benefits is available from the author.

[14] The Bureau plans to publish a handbook on the Employment Cost Index methodology. Sample design, index number computation, and other topics treated here only briefly will be considered in detail.

[15] There are 12 occupational groups in the census classification system (listed in footnote 19). Three are not applicable to the private nonfarm sector, excluding households. Other things being equal, a measure of change in earnings can be obtained with a smaller sample than would be needed for a measure of the level of earnings.

[16] All told, about 250 occupations were studied in the 1974 survey. About 1,000 of the sample establishments had been surveyed in 1971 in the Bureau's Occupational Employment Survey. These units were not surveyed again and the already available occupational employment information was used for them. Use of the census data eliminated the need for a costly and time-consuming study equivalent to the Consumer Expenditure Survey being conducted as part of the current CPI revision.

[17] As noted above, the Employment Cost Index approach has been adopted in the computation of area wage survey measures of change. (See footnote 9.)

[18] Data from Alaska and Hawaii will initially be excluded but will be added later.

[19] The planned subindexes include, for major industry divisions, agriculture, forestry, and fisheries; mining; contract construction; manufacturing; transportation, communication, electric, gas, and sanitary services; wholesale and retail trade; finance, insurance, and real estate; services; and government. For major occupational groups, the subindexes are professional, technical, and kindred workers; farmers and farm managers; managers and administrators, except

farm; salesworkers; clerical and kindred workers; craft and kindred workers; operatives, except transportation; transportation equipment operatives; laborers, except farm; service workers, except private household; farm laborers and foremen; and private household workers. The geographic subindexes are New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific.

APPENDIX: Identifying and measuring changes in the price of labor

Although superficially a simple idea, a host of conceptual and data collection problems are inherent in the overall measurement of "changes in the price of a unit of labor services." Many of these problems reflect the essentially abstract nature of the price-of-labor concept. This price is not directly visible in labor market transactions. It can best be described as a multidimensional standard which, together with other factors such as the volume of work performed, determines the aggregate employer payment to or on behalf of each worker.[1]

A key issue stems from the rapid growth of fringe benefits. While at one time employee compensation could largely be equated with straight-time wages per unit of time worked or unit of output produced, worker remuneration now includes various forms of premium pay; payments for time not worked, such as vacation and holiday pay; and employer contributions to public and private pension and welfare programs. It is no longer sufficient to define the price of labor as a wage rate; the concept must now encompass the total employee compensation package.

Compensation could theoretically be viewed either in terms of a subjective measure of value to employees or an objective measure of money flows. The former approach clearly cannot be implemented in a statistical survey.

Regarding the latter approach, there are two concepts of money flows. Deferred payments through employer-financed pension and welfare funds do not pass directly from employer to employee; the rate of compensation may be viewed as employer payments or as worker receipts, and the two need not be equal.[2] Since employer expenditures are relatively easily measured and fit in with other government statistical series, the Employment Cost Index was conceived as an employer cost measure. Most important, this approach provides a measure which meets significant needs of data users. In essence, the new series is designed to measure the money obligations employers assume when they hire labor—obligations which affect decisions regarding employment, output, and prices.

Employers normally purchase a continuing flow of labor services, not simply a given number of units. However, the price concept relates money outlays to a definite number of units purchased or sold. In the case of labor, the unit is normally measured in terms of time.

When wages are expressed in weekly, monthly, or annual terms (that is, when workers are salaried), they must be converted to an hourly basis to be directly comparable with hourly wages. No difficulties arise if the "terms of trade" explicitly or implicitly provide for working a set number of hours. However, if the number of working hours is not fixed, as for many supervisory employees, determination of an hourly wage is somewhat arbitrary. Nevertheless, a reasonable approximation of an average or normal workweek is feasible. In the absence of other information, salaried workers' pay is converted to an hourly basis for the Employment Cost Index on the assumption that employees not working fixed hours put in the same number of hours per week as those in the same establishment who do.

Where incentive pay is used, either the piece rates or the resulting hourly earnings can be viewed as the "real" wage rate. Neither approach provides an ideal solution, but the latter is simpler to implement in data collection and therefore is used in computing the Employment Cost Index.

Other problems remain. Should pay be expressed in terms of hours worked or hours paid for? With vacations, holidays, sick leave, and the like, not all paid hours are in fact worked. Moreover, since the importance of paid time not worked has been growing, relating a constant volume of pay to fewer working hours yields a higher hourly rate. Since the new series defines the price of labor as total employer payments per unit of time made available by workers, it logically follows that these outlays should be expressed in terms of hours worked.[3]

Another factor to consider in measuring changes

in total compensation is that since employers normally do not purchase, and workers do not offer, a single hour of labor, both sides consider (in addition to basic wage-rates) the length of the workweek and, at times, the possibility of augmenting straight-time earnings by working overtime, late shifts, or other premium paid hours. Changes in employer obligations to provide work at premium rates should therefore be included in a cost-of-labor index.

The concept of the price of labor as earnings expressed in terms of employer outlays on an hours-worked basis is thus the base for the Employment Cost Index. Averaging employers' hourly costs in units of observation, using constant weights, provides a measure of price change.

Unfortunately, a working definition sufficient for static analyses may be incomplete when dynamic considerations are introduced. For example, pay increases associated with greater proficiency in a job should be distinguished from increases in pay unrelated to job performance—the perennial problem of coping with quality change in compiling price indexes.[4]

Ideally, the Employment Cost Index should reflect only increases unrelated to improved performance.[5] It should measure changes in rates of pay for specific jobs, not the individuals filling those jobs. But how in a mass survey operation does one identify those in-grade wage adjustments for individuals—regardless of whether they are labeled longevity or merit increases—which are pay adjustments in the desired sense? Similarly, how can one account for pay changes associated with turnover of personnel in a job? Are they simply a function of varying worker quality? Finally, the concept of a pay increase may be influenced by the breadth of the definition of a specific job. One conclusion seems inevitable: considering the current state of the art, despite conceptual problems, the Employment Cost Index must as a practical matter be a measure of change in occupational averages of straight-time hourly earnings.

Consideration of piece rates per se necessarily excludes gains for salespeople associated with increases in the prices of products sold, since commissions for these employees often are expressed as a percent of the value of sales. Moreover, how in the actual conduct of a survey would one disentangle piece-rate adjustments designed as general wage changes from the myriad adjustments in piece rates as a result of modifications in the specifications of individual jobs? Piece rates realistically can be compared only in industries with fairly simple technologies and relatively uncomplicated pay systems.

On the other hand, considering only changes in hourly earnings of piece-rated workers, all rate changes that have an impact on earnings, regardless of cause, affect the index. In addition, pay changes resulting from irregular fluctuations in production runs influence the overall measurement of wage-rate change.[6] Nevertheless, expediency in data collection dictates an earnings approach.

Additional problems emerge when the scope of inquiry broadens from wage-rates to total compensation. Employer outlays for fringe benefits fluctuate with changes in benefit practices, composition of the work force, wage levels, cost of providing services, actuarial assumptions, and the intensity with which the labor force is utilized. In addition, outlays for funded benefits may fluctuate from year to year depending upon annual profits. Clearly, not all of these elements can be considered parts of the price of labor.

A workable solution is to focus on whether or not each particular change in benefit outlays is a modification of the rate of labor cost obligation assumed by the employer. Thus, increases in the volume of overtime worked should not affect the index since the transactions price is not altered. Yearly fluctuations in pension funding independent of actuarial considerations also do not affect that price. On the other hand, changes in benefit practices, insurance premiums, tax rates, actuarial assumptions, demographic characteristics of the work force, and contribution rates to Supplemental Unemployment Benefit funds determined by levels of funding do affect the transactions price, and so should be reflected in a compensation cost index.[7] □

FOOTNOTES

[1] Difficulties with the price concept are not unique to the labor market; they also apply in analyzing product market transactions—for example, the treatment of rebates and credit terms.

[2] This distinction raises a theoretical issue. If the relevant concept of money compensation differs for workers and employers, how do we define an appropriate scale for the vertical axis of the usual supply and demand diagram?

[3] From the worker's point of view, increased paid leave means more leisure time but, normally, not additional money (assuming the leave time is not in fact worked). Additional paid leave would not be reflected in a series whose denominator is hours paid for, but would be reflected in an hours-worked series. In the former case, neither the numerator nor the denominator would change. In a sense, pay for time not worked may be considered deferred compensation for hours actually worked.

[4] See Thomas W. Gavett, "Quality and a Pure Price Index," *Monthly Labor Review*, March 1967, pp. 16–20; and Jack E. Triplett, "Determining the effects of quality change on the CPI," *Monthly Labor Review*, May 1971, pp. 27–32.

[5] To use a Marshallian concept, the Employment Cost Index should reflect only adjustments in efficiency-earnings: "That is, earnings measured, not as time-earnings are with reference to the time spent in earning them; and not as piece-work earnings are with reference to the amount of output resulting from the work by which they are earned; but with reference to the exertion of ability and *efficiency* required of the worker." Alfred Marshall, *Principles of Economics* (8th ed; London, Macmillan and Co., 1920), p. 549.

[6] In this instance, the index is also influenced by earnings gains from loosened incentive standards. It can be argued that such pay boosts properly should be treated as increases in the price of labor.

[7] Severance pay presents a special case. In a period of layoffs, an employer's cost obligations under existing practices will rise and hours worked will fall; both developments raise outlays per hour worked. Since the occurrences are outside the employer's control—given the existence of the severance pay plan—it seems appropriate that they influence the Employment Cost Index. Our concept of the price of labor includes current payments for prior service, including those for already retired workers and beneficiaries. These payments can be viewed as part of a predetermined package which could be spent in other ways for the current work force.

The choice of alternatives to work

The falling labor force participation rates for males may also be due in part to changing attitudes toward work which, in turn, are related to expanding income options. It is sometimes alleged that though jobs are plentiful, blacks will no longer take them because of unrealistic wage expectations. . . . The existence of alienated black males supported by the "hustle" and of those who refuse dead-end jobs cannot be denied, but the frequency of such behavior is too often overstated and ascribed to all low-income "disadvantaged" blacks. One study based on intensive interviews with three groups of disadvantaged black males—those participating in a training program, those with intermittent work experience, and others who had never worked—revealed substantial differences despite similar age and education patterns. Program participants had a strong "work ethic" while those who had never worked filled the stereotype of the "street dude." . . . Intermittent workers—the "swing" group moving in and out of work both voluntarily and involuntarily—in all probability account for the bulk of younger low-income males. Their attitudes toward work, labor force participation, and street corner activities depend largely on their financial status. But their attitudes also depend on the availability and attractiveness of employment opportunities. If these improve, more will choose work over socially less desirable activities.

—SAR A. LEVITAN, WILLIAM B. JOHNSTON, ROBERT TAGGART,

Still a Dream: The Changing Status of Blacks Since 1960 (Cambridge, Mass., Harvard University Press, 1975), p. 73.