

Appendix R

What to Do With the Price Index? Dr. Anthony Blackburn

Brief History of the Price Index of Operating Costs

The Price Index of Operating Costs (PIOC) was constructed for the first time in 1970 by the Bureau of Labor Statistics (BLS), U.S. Department of Labor, under contract to the City of New York. The first BLS PIOC report provided estimates of price index change for the 3 years 1967-1970.¹ The BLS continued to provide annual PIOC reports through 1981, at which time reductions in force mandated by the Reagan administration compelled BLS to decline further PIOC responsibilities. From 1982-1991, RGB contracted with private consulting firms to prepare the annual PIOC. Annual PIOC reports from 1992 onwards have been prepared by RGB staff with modest levels of outside consulting assistance.

The PIOC is a “base-weighted index of the prices of various cost components.”² “Base-weighted” in this context means that the quantities of goods and services used in the base year operation of apartment buildings are assumed to remain unchanged over time.

The relative importance of each component of the index, as measured by the expenditure weights, changes over time as some prices grow faster than others. Thus, the expenditure weights are updated annually, but the implicit base year quantities (i.e. gallons of fuel oil per unit per annum) remain fixed. The expenditure weights are combined with the changing prices of goods and services purchased by landlords to arrive at an estimate of changes in operating costs over time. As BLS pointed out in its first PIOC report, “The index is a price index and not a cost index. To the degree that the base-period market basket becomes unrepresentative because landlords choose to purchase more or fewer units of the same item, the index would to some extent lose its appropriateness as a measure of changing cost.”³

The usefulness of the PIOC to RGB is, however, based solely on its presumed accuracy in measuring changes in operating costs over time. For this reason, the RGB has been periodically concerned to make sure that the base-year market basket is indeed representative of the current pattern of landlords' expenditures.

In 1974, BLS re-surveyed a subsample of its 1970 landlords at RGB's request and concluded that the expenditure weights had remained reliable, and a full-scale expenditure survey to update the

¹ The decision to commission a specific price index for apartment buildings evidently reflected a concern for insuring the high quality of information used by RGB. The CPI, which is a poor indicator of changes in rental operating costs, was used extensively in other communities as a basis for rent adjustments. (See Monica Lett, *Rent Control: Concepts, Realities, and Mechanisms*. Center for Urban Policy Research, 1976.)

² A Price Index of Operating Costs for Uncontrolled Apartment Houses in New York City, U.S. Department of Labor, Bureau of Labor Statistics, Middle Atlantic Office, Regional Report No. 17. February 1971, p. 4.

³ Op.Cit., p.4

weights was not warranted at that time.⁴ In 1980, during a three-year period of extraordinary increases in the price of heating oils, the RGB itself made an ad hoc reduction of 10% in the fuel expenditure weight to incorporate the estimated effects of landlords' fuel conservation efforts. In 1980, BLS again re-surveyed a subsample of its 1970 landlords, and this time concluded that there was a need to revise the expenditure weights, particularly with respect to utilities and fuel.

In 1983, RGB commissioned its PIOC contractor to perform a new survey of rent stabilized landlords' 1982 expenditure patterns. The updated weights, which were first used in construction of the 1982-1983 PIOC, confirmed the BLS suspicion that the major differences between the 1969 and 1982 market baskets were in the fuel and utilities components.⁵ It was also apparent from the 1982 updated fuel weight that RGB's 1980 10% reduction in the fuel weight had substantially underestimated the effect of conservation.

Seventeen years have now elapsed since the PIOC weights were last updated. The passage of time does not by itself mean that the expenditure weights are no longer accurate, particularly if relative prices have been fairly stable and the underlying technology of apartment building operations is essentially unchanged. However, the fact that so many years have passed since the last update does at least raise the possibility that the PIOC may no longer provide an accurate measure of change in apartment operating costs.

The accuracy of the PIOC in the future will depend on whether the items priced, and the weights attached to those prices (the market basket), are representative of landlords' actual expenditure patterns. A market basket must specify the relative importance of the major components and sub-components of landlords' expenditures in the new base year, based on data on landlord expenditures. Within these major components and sub-components, a list of items representative of goods and services purchased by landlords, together with precise specifications of each item and an attached "item weight" is then developed, and the new market basket is complete. It should be noted that the items included in the index are a representative sample of goods and services purchased by landlords, not an exhaustive list.

Sources of Change in Expenditure Weights

In a world in which technology, regulation, and relative prices were unchanging over time, there would be no reason for landlords to adjust their expenditure patterns. This is not the world we live in, however.

Changes in the relative prices create incentives for landlords to economize on goods and services whose prices increase faster than average. The sharp increase in fuel prices in the late 1970s was, as is well documented, accompanied by a sharp reduction in fuel use. Landlords' ability to substitute less expensive for more expensive inputs in order to enhance return on investment means that a price index, in which inputs are not substituted for one another, will tend to overestimate actual changes in costs. Changes in technology, such as more energy efficient appliances, more

⁴ 1981 Price Index of Operating Costs for Rent Stabilized Apartment Houses in New York City, U.S. Department of Labor, Bureau of Labor Statistics, p. 87.

⁵ *Report on the 1983 Expenditure Study and Analysis*, Urban Systems Research & Engineering, April 1983, pp. 4-5.

reliable elevators, cheaper PC-based accounting systems, will tend to reduce the cost of required inputs (or they would not be adopted). Such advances contribute to price index overestimates of cost changes.

Offsetting the effect of changing relative prices and technological change may be the effect of increased regulatory requirements. Increased regulatory requirements typically force landlords to purchase goods and services not previously needed. These increases in required inputs are not captured by a price index, and, as a result, a price index will tend to underestimate actual changes in costs when the regulatory burden is increasing.

It should also be noted that the inventory of rent stabilized buildings today is not the same as it was in 1983 when the expenditure weights were last updated. Between 1981 and 1996, the number of pre-1947 stabilized units increased by approximately 130,000, while the number of post-1946 stabilized units fell by about 30,000.⁶ Given the known differences in expenditure patterns between older and newer buildings, this shift might by itself lead to progressive inaccuracy in the expenditure weights.

For all these reasons, the market basket that was constructed in 1983 may no longer be representative of landlords' expenditure patterns. Landlords may be purchasing more of some items and less of others; furthermore, there may be some new items (fees, computers, etc.) that did not exist 17 years ago, but which now account for significant shares of building operating costs.

Price and Cost Indexes

A price index, such as the PIOC, directly measures change in a weighted average of a set of prices paid for goods and services. To the extent that the weights correspond to the relative importance of these goods and services in providing a service, such as rental housing, the price index will provide an accurate measure of change in costs. However, if the relative importance of the goods and services being priced is changing while the weights are fixed, the price index may not provide an accurate measure of change in costs.

A cost index, on the other hand, directly measures costs, rather than base-weighted prices, at different points in time. At each point in time, costs are the sum of the product of prices paid and quantities purchased; unlike a price index, in a cost index the quantities purchased may vary over time.

For the purpose of regulating rents, an index that directly measures costs is clearly preferable to a price index, other things being equal. However, it is generally the case that a price index is much cheaper to construct, because it is much easier to collect price data than to obtain detailed expenditure data from less-than-cooperative landlords. To construct a price index, it is necessary to collect the detailed expenditure data from landlords only when the weights are updated. To construct an annual cost index, it would normally be necessary to conduct a major expenditure study every year.

⁶ *Housing New York City 1993*, Table 4.11, and *Housing New York City 1996*, Table 4.25.

There is another practical reason why a price index approach might be preferred. Landlords surveyed to find out how much their costs had risen over time would have powerful reasons to exaggerate the increase in their costs. In contrast, if data supplied by landlords are used simply to update price index expenditure weights, these incentives would not exist.

It should be noted at this point that, while the PIOC is for the most part a pure price index, it contains some important elements that would also show up in a cost index.

The most important of these is the Real Estate Tax component, accounting for about 25% of aggregate operating costs. This is currently measured by real estate taxes levied on rent stabilized buildings. This information is provided by the Department of Finance, and would presumably be corroborated if it were instead obtained through a survey of landlords' expenditures. The same reasoning holds for water and sewer costs, which account for a further 6% of operating costs.⁷ Thus, approximately one-third of the operating costs covered by the PIOC would be treated identically in a cost index.

The current treatment of fuel oil and gas used for space heating in the PIOC is also somewhat anomalous for a price index. Through 1985, the fuel oil and gas price relatives were conventionally estimated on a "point-to-point" basis; i.e. as the ratio of the prices in successive April's. From 1986 onwards, at the request of the Board, the PIOC fuel oil and gas price relatives were calculated by estimating the ratio of total costs in successive years. The construction of price ratios involves combining monthly climatic data (heating degree days) with monthly prices so that the price relative is typically higher when cold years follow warm years, and vice versa.

These fuel and gas components may look a little like components of a cost index, but actually they are not because they implicitly assume that base-year consumption levels correspond to current average yearly consumption levels. To the extent that the underlying fuel oil and gas weights may have become less accurate with the passage of time (possibly as a result of on-going conservation efforts), changes in these components of the PIOC may no longer accurately measure actual changes in cost.

Notwithstanding the somewhat anomalous treatment of fuel oil and gas heating in the PIOC, the decision of the Board to convert from a "point-to-point" price relative to what might reasonably be called an annual "cost relative" clearly improved the PIOC's ability to track annual changes in apartment operating costs over time. All other price relatives except taxes and water and sewer are calculated on a point-to-point basis.

Accuracy of the PIOC

The PIOC is intended to provide a reliable estimate of the annual percentage change in the aggregate operating costs of rent stabilized apartment buildings. To assess the accuracy of the PIOC over time, it would be necessary to determine average costs per unit in the base year, as measured by

⁷ Real estate taxes are the same in both price and cost indexes because there is no "quantity" variation. The same is true for water and sewer frontage costs. This is not true however for metered water costs, which, because the PIOC uses actual bill amounts, incorporate varying water use just like a cost index.

an expenditure survey, use the PIOC to predict average costs per unit in a subsequent year, and compare this prediction with actual costs in the same year, as measured by a second expenditure survey.

It is possible to use the 1982 expenditure survey results to assess the reliability of the BLS price index as a measure of costs over the period 1969-1982. The BLS price index “predicted” monthly operating costs for post-1946 units to be \$328 in 1982. By contrast, the 1982 expenditure study estimated annual operating costs for post-1946 units to be \$262. Of the \$66 (25%) overestimate, \$48 (73%) was accounted for by two components: - fuel and utilities (\$27) and taxes (\$20). The overestimate of fuel and utilities resulted from reduced fuel use in response to rapidly rising oil prices that led RGB to reduce the fuel weight by 10%. The overestimate of taxes cannot be explained in the same way because there is no baseline “quantity” for taxes. The overestimate of 1982 taxes can most probably be attributed to statistical sampling error resulting from the use of a rather small sample of establishments to calculate the tax price relative over the 1969-1982 period.

To assess the accuracy of the PIOC between 1983 and 1999, absent data from a new expenditure study of the type performed in 1983, recourse may be had to the I&E data that was first made available to RGB in 1990. The I&E survey respondents are not a completely representative sample of the rent stabilized universe, but RGB staff correctly re-weight the I&E data to insure that building types and geographic areas are not underrepresented.

Over the eight years since the I&E data became available, RGB staff research has shown that there is a high level of agreement between growth in the PIOC and growth in I&E-based costs. Between 1990 and 1998, the PIOC increased by 26.5%, while I&E costs increased by 26.0%.⁸

In 1997, the most recent year for which I&E data are available, the average monthly operating cost per I&E unit was \$458. If this is adjusted downwards by 8% to reflect the findings of the 1992 I&E audit study, average monthly operating expense would be \$421.⁹ The comparable PIOC estimate of average monthly operating costs over the 12 months April 1997 to 1998 was \$419.

This extraordinary degree of agreement does not necessarily imply that the PIOC has functioned like a precision instrument for the last 17 years, but rather than its errors have tended to offset one another. To see this, compare the PIOC expense projections for the year ending 3/31/98 with the 1997 I&E breakdown.¹⁰

⁸ *2000 Income & Expense Study*, NYC Rent Guidelines Board, p. 10.

⁹ *Rents, Markets & Trends 1999*, NYC Rent Guidelines Board, p. 32.

¹⁰ The I&E figures incorporate downward adjustments of 11% to Maintenance, 25% to Administration, 37% to Miscellaneous, and 1% to all other categories to reflect the findings of the Audit Study (*Rent, Markets & Trends, 1997*, p. 42). The Maintenance category incorporates the Contractor Services, Parts & Supplies, and Replacement Costs components of the PIOC. All Miscellaneous expenses in the I&E data have been allocated to the combined Maintenance and Admin. Category.

	<u>PIOC</u>		<u>I&E</u>		<u>Variance</u>
Taxes	\$107	(25.5%)	\$107	(25.4%)	\$0
Labor	70	(16.7%)	64	(15.2%)	+6
Fuel	44	(10.5%)	43	(10.2%)	+1
Utilities	60	(14.3%)	47	(11.2%)	+13
Insurance	27	(6.4%)	23	(5.5%)	+4
Maintenance & Admin.	110	(26.3%)	137	(32.5%)	-27
TOTAL	\$419		\$421		-\$2

(Numbers do not sum exactly because of rounding error.)

It will be apparent that, if the I&E data are accurate, the PIOC has overpredicted combined Labor, Fuel, Utilities, and Insurance costs by about \$25 per month and underpredicted, by a similar amount, Maintenance and Administrative costs. The underprediction of maintenance and administrative costs is consistent with the owners' claims of an increased regulatory burden; the overprediction of utilities may be evidence of ongoing energy conservation. In any event, it is clear that there is significant deviation between the two sets of weights, particularly for Utilities, which is a fairly volatile component, and for Maintenance and Administration.

Should the PIOC Expenditure Weights be Revised?

Notwithstanding the remarkable degree of agreement between the aggregate expense estimates from the two sources, it is apparent that the possibility now exists for the PIOC to misestimate future change in operating costs. This will certainly happen if utility prices increase faster or slower than the All-Items change or if the prices of maintenance and administration items increase faster or slower than the All-Items change.

For example, if utility prices were to increase by 10% while all other prices increased by around 2%, the All-Items PIOC price relative would over-estimate actual price change by about one quarter of one percent. If, in the same year, Maintenance/Admin costs increased by only 1%, the PIOC over-estimate would be about one third of one percent (3.2% vs. 2.9%).

The basic case for updating the PIOC rests on the importance of its accuracy in measuring changes in operating costs. Statistical analysis of the relationship between the one-year rent guideline and the PIOC All-Items price index change over the 23-year period 1975-1997 indicates that each one-percent increase in the PIOC translates into a one-half-percent increase in the one-year rent guideline. Given an aggregate rent roll of \$8 billion for the stabilized inventory, a one-percent error in the PIOC would translate into a \$40 million transfer in one direction or another between landlords and tenants in the first year. The present value of this indefinite stream discounted at 5 percent is therefore around \$800 million.¹¹ This simple arithmetic is the most powerful reason for trying to enhance the reliability of the PIOC as a measure of operating costs.

¹¹ This is certainly an overestimate because stabilized rents exceed market rents in many areas of the City.

Alternative Approaches to Revising the PIOC

Two alternative approaches are available. The most obvious is to replicate the 1983 Expenditure Survey. This would support estimates of new component weights, would assist in the specification of items to be priced, and would provide a basis for the new item weights.

There are two problems with this approach. The first problem is that it is expensive. In 1983, the cost of the Expenditure Survey was \$235,000, and by now this cost would certainly be much higher. Given the importance of accuracy in the PIOC, such an expense may again be justifiable.

The second problem concerns the statistical reliability of the findings of both the 1983 Expenditure Survey and any similar survey that the RGB might commission. Notwithstanding an extraordinarily intense effort to survey the owners/managers of almost 2,500 buildings (mailings, postcard reminders, and over 13,000 telephone callbacks), the number of completed responses was just 398, a response rate of only 17 percent. The low response rate may be partially attributed to factors that could be avoided in any future survey. These include fielding the survey in the holiday season, augmenting the basic survey with a long survey of mortgage financing, and the refusal of RSA to supply a letter of endorsement. None of these hindrances were present when the survey was pre-tested, but even then the response rate achieved was only 26 percent.

The problem with such a low response rate is possible self-selection bias. We cannot know whether owners who differ in their willingness to respond also differ in the way they operate their buildings. Notwithstanding the seeming reliability of the 1982-based PIOC, the accuracy of the 1982 expenditure weights, given the 17% response rate, are necessarily suspect.

Lastly, it should be noted that a revised PIOC, even with initially accurate expenditure weights, would continue to have the same drawbacks as any price index, in that actual utilization patterns may change over time, while the base year market basket does not.

The alternative approach is to use the I&E data to update the component weights. Simply comparing sample sizes, it is clear that the I&E data is greatly preferable. The 1983 Expenditure Survey was based on data from 398 buildings accounting for about 24,000 units. The 1998 I&E data, by contrast, are based on data from 12,383 buildings accounting for 569,042 units. The 1983 Expenditure Survey response rate was 17 percent. The 1998 I&E data contained information on approximately 60 percent of all rent stabilized buildings required to file. These buildings account for 51 percent of all rent stabilized units registered with DHCR, and 56 percent of all rent stabilized units in buildings required to file. On grounds of sample size, response rate, and coverage, the I&E database is clearly superior to any data which might be acquired through a replication of the 1983 Expenditure Survey.

It is the nature of things that we cannot know whether owners who respond to an expenditure survey or who submit RPIE filings have different expenditure patterns than those who do not respond. If they do, the resulting expenditure weight estimates will be biased. The extent of this bias is inversely related to the response rate. Since the I&E response rate is 3.5 times higher than the 1983 Expenditure Survey response rate, weights based on the I&E data are, other things being equal, likely to be much less biased than weights based on expenditure study data.

In one respect, and only one respect, an expenditure survey approach is to be preferred over an I&E approach to revising the weights. The I&E data excludes data on buildings with 10 or fewer units, whereas the expenditure study sample universe includes all rent stabilized buildings. The I&E data also excludes buildings with assessed values of \$80,000 or less, of which there are very few.

The problem of the 6-10 unit buildings is not as serious as it might seem because of the way that the expenditure weights are constructed. Buildings with 10 or fewer units account for just 10 percent of all rent stabilized units and probably somewhere around 10 percent of aggregate operating costs. Because the expenditure weight estimates are equal to the share of each component of aggregate expenditure, the exclusion of a relatively small portion of aggregate expenditures would not greatly bias the estimates. In any event, a statistical analysis of the relationship between building size and expenditure patterns would support a simple adjustment to remove what relatively little bias might be introduced by the unavailability of data on the smallest stabilized buildings.

It should be acknowledged that the I&E buildings are known to be somewhat unrepresentative of the rent-stabilized universe, particularly in terms of the under-representation of buildings in distressed areas of the City. RGB staff currently deal with this problem by weighting the data at the borough level. It would certainly be possible to refine this procedure by going to a higher level of geographic disaggregation; i.e. the 55 sub-boroughs used in the Housing and Vacancy Survey (HVS).

It may be argued that the I&E data, being essentially unaudited, are inherently unreliable. This argument can be countered in two ways. In the first place, I&E filings, which are legal documents with owner/agent signatures, are probably at least as reliable as expenditure survey data to which no penalties for providing false information are attached. Secondly, the evidence of the 50-building audit study of 1990 I&E filings is generally reassuring, especially for taxes, labor, fuel, utilities, and insurance, which currently account for 62% of all operating costs.

For many years, tenant representatives have argued for the use of audited expense data from all stabilized landlords as a basis for estimating annual change in operating costs. As a practical matter, comprehensive audited financial data are not going to become available on an annual basis, and even if they were, the elapsed time between fiscal year ends and the completion of the audit process and data analysis would mean that such information could not be obtained in time to meet the need for annual rent guidelines that are not hopelessly out-dated.

A case could be made for commissioning a one-time comprehensive audit study of a large number of RPIE filings and using the results to re-estimate the expenditure weights. This would undoubtedly be an expensive undertaking and, in any event, the findings of such an audit study would be better applied to make adjustments to the much larger data set of unaudited filings. An updated audit study of the type performed by the Finance Department in 1992 would be an extremely valuable contribution if the PIOC is to be revised using the I&E data.

Concerns that the I&E buildings may not be representative of the rent stabilized universe in terms of location or building characteristics should be alleviated by the knowledge that RGB staff already re-weight the data to deal with this problem.

For the reasons outlined above, it should be apparent that the I&E data would support more reliable estimates of the expenditure weights than would a new expenditure study of the type performed in 1983.

There is an additional, and perhaps even more compelling, reason for constructing an index based on the I&E data. The I&E weights will change each year, albeit with a lag, not only because of changing prices, but also because the base-year quantities may be changing. In this way, an I&E-based index would approximate a true cost index, without the drawback of fixed base-year quantities. It was precisely this drawback that caused the 1969-based index to overestimate the change in operating costs in the 1970s.

Specifying Items to be Priced and Assigning Item Weights

The I&E data, unlike expenditure survey data, do not include information that can be used to estimate item weights. There is no real reason for supposing that the existing item weights are unsatisfactory, except in the area of administrative costs, where information technology has been completely revolutionized since 1982, and in the area of taxes, fees, and permits, where additional regulatory requirements have been imposed over the years. It would be desirable to introduce a number of new items into the administrative cost index component, such as personal computers, printers, accounting software, etc., and also to include the various fees referenced in RSA's May 1999 submission to RGB.

This could be best accomplished by conducting a relatively small survey of landlord/building managers to find out what they have been purchasing and how much they have been spending on such items. This survey, administered to a sample of 50-100 owners of buildings stratified by size and location, would be designed to elicit information on outlays for such items as computer equipment, lead paint abatement, recycling, etc. The survey could be conducted by telephone and/or mail, using RGB staff resources. It would also be desirable to determine the continued representativeness of other items through an informal survey of vendors.

It is important that RGB members understand that introducing new items into the market basket will not lead to an increase in the PIOC estimate of operating costs. For example, any additional fees and charges that are not included in the current index would simply appear as new items to be priced in a re-based PIOC. To the extent that these fees and charges do not increase over time as fast as other items, their inclusion will tend to reduce rather than increase the rate of growth of the All-Items price index.

Summary

The PIOC appears to have provided quite accurate estimates of changes in operating costs over the last 17 years, in part because its errors have been offsetting. It also appears that, because of drift in the expenditure weights, there is now a potential for the PIOC to misestimate future changes in operating costs.

For this reason, it is recommended that the PIOC be revised and that the new index be based on expenditure weights estimated using I&E data. The I&E 1999 weights, for example, would be

updated using the 1999-2000 price relatives for use in estimating the 2000-2001 PIOC change. The resulting index would approximate a cost index for all price index components, thereby avoiding the well-known drawbacks of a base-weighted price index. A similar approach could be adopted to update the Hotel Price Index based on hotel-specific tabulations of the I&E data.

Attachment A

Issues Raised by Mr. Lubell

Is there any rationale for having some utility measured on a point-to-point basis while others are measured in a cost-weighted basis? Wouldn't it be more accurate to have all elements measured on a cost-weighted basis? Since utility costs usually have fuel-cost adjustments associated with them, aren't owners disadvantaged if utilities are measured on a point-to-point basis (April to April) when fuel costs have been driven up during the winter?

In 1986, the Board decided to abandon the traditional point-to-point method of calculating the price relatives for all three grades of heating oil and for the two gas bills used for space heating in favor of a more complex “cost-relative” approach. The objective was to achieve a more accurate estimate of year-to-year change in heating costs.

Mr. Lubell has raised the possibility of extending this approach to cover additional utility bills (electricity, gas used for cooking). His reasoning is that, while usage for non-space heating purposes may not exhibit much inter-year and seasonal variation, the rates charged for these utility items may well vary from month to month because of fuel adjustments. Mr. Lubell is quite correct in making this suggestion, and it would not be difficult to incorporate such a change in future PIOC calculations. I do suspect, however, that the change in method will not change the numbers very much.

I do not share his view that seasonal variation in utility prices means that April-to-April calculations of price change are unfair to owners. April prices may tend to be below the year-round average, but over the years they will be below the year-round average in the same degree. This means that the point-to-point method will generally provide an unbiased estimate of the change in costs.

Doesn't it make sense for the RGB to at least consider the real estate tax increase for the “average” building alongside the traditional “aggregate” increase in real estate taxes measured by the PIOC?

This same question was also raised in a recent letter to the RGB Chairman by Mr. Lubell, in which he requested that certain alternative methods of calculating the change in real estate taxes be considered for the 2000 PIOC. Specifically, Mr. Lubell requested that “the staff calculate an average and a median per-building increase in real estate taxes” and that, in addition to reporting the standard PIOC results, supplementary PIOC be calculated which incorporate these alternative methods of computing the tax price relative.

In general, I would support Mr. Lubell's request for mean and median per-building tax changes on the grounds that the more information the Board has, the better will be its decisions on rent

guidelines. I would, however, argue strongly against using these numbers to construct alternative PIOC.

Basic price index methodology mandates the use of the traditional “aggregate” calculation of the tax price relative, which is used implicitly for all other components of the PIOC. To substitute an alternative method for taxes would mean that the PIOC could no longer be described as a price index in the terminology of economics, but rather as some sort of hybrid index. It would also mean that the PIOC could no longer be used as it has been in the past to set rent guidelines.

Over the years, the Board has commonly considered rent increases that will, at a minimum, indemnify building owners for increases in costs. This was the purpose of the “traditional” commensurate rent increase calculation, although the Board also took into account other factors. Using the standard PIOC tax price relative methods would insure that, if aggregate real estate taxes levied on rent stabilized buildings increased by, say, 5% or \$50 million, the resulting commensurate rent increase would allow a \$50 million increase in rental income.

As Mr. Lubell has correctly pointed out, taking the average percentage tax increase across buildings will almost certainly yield a different number for the tax price relative, say 7.5% in this example. The total tax increase is still \$50 million, however. But plugging the 7.5% into the commensurate rent increase calculation would then lead to a \$75 million increase in rental income. The argument is similar if the median percentage tax increase is used.

It should be noted, however, that the average percentage tax increase across buildings may be either greater or less than the standard PIOC tax increase. The standard PIOC tax increase implicitly weights each building's tax relative by its share of aggregate base-year taxes. The average percentage tax increase across buildings gives each building's tax relative equal weight. If buildings with smaller base-year taxes tend to have larger than average percentage tax increase, the average percent tax increase will exceed the PIOC price relative, as in the above example. Conversely, if percentage tax increases are positively correlated with base-year taxes, the reverse is true.