

# The Boskin Commission Report After a Decade: After-life or Requiem?

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ISSUES OF PRICE INFLATION measurement and the appropriate uses of Consumer Price Indexes in the U.S. have long been of concern to a relatively small cadre of economists and statisticians, particularly those affiliated with the Conference on Research in Income and Wealth, and the Productivity Program at the National Bureau of Economic Research.<sup>2</sup> In the early 1990s, however, issues of price measurement again began percolating more widely. The late Zvi Griliches (1997:169) explained this phenomenon as follows:

“Why has the measurement of changes in consumption (and output) prices suddenly become a popular topic? We were a small band, wandering in the wilderness — nobody was listening to us. And now, the measurement issue is attracting attention... The big difference recently has been that the Chairman of the Board of Governors and many politicians have become interested in price measurement, and suddenly it has become a hot political issue. If you can do something ‘to the CPI,’ then you can do something to the growth in entitlements and growth in taxes.”

It is clear that the rise and fall of public interest in price measurement issues, including the Boskin Committee report and its legacy, needs

to be interpreted in the political economy context of Congress and the White House attempting to deal with growing budget deficits in the early to mid-1990s, particularly following the 1994 elections.

It is now a little more than ten years since the Boskin Committee issued its interim report on September 15, 1995, and not quite a decade since its final report was released on December 4, 1996 (Boskin et al., 1995 and 1996). Budget deficits are again looming as a significant political economy issue, and the venerable Chairman Alan Greenspan of the Board of Governors of the Federal Reserve Board has recently been replaced by CEA Chairman Ben Bernanke. But one does not hear much these days about biases in the Consumer Price Index, or about adjusting downward mandated growth in entitlement program benefits due to an upward biased CPI.

There is but one exception of which I am aware, and that is one that suggests a somewhat more solemn interpretation, albeit an ambiguity on the nature of any bias. Specifically, on April 13, 2005, that esteemed and legendary news outlet, *The Onion* (2005), disclosed that:

“A report released Monday by the Federal Consumer Quality-of-Life Control Board indi-

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2 For an historical overview, see Reinsdorf and Triplett (2005), and the references cited therein; also see Stigler et al. (1961).

cates that the cost of living now outstrips life's benefits for many Americans. 'This is sobering news', said study director Jack Farness. 'For the first time, we have statistical evidence of what we've suspected for the past 40 years: Life really isn't worth living.'"

Putting aside the idiosyncratic Onion pronouncement, why is it that inflation and price index measurement issues are no longer in the news? Did the Boskin Committee lay these issues to rest? Has subsequent research effectively addressed and resolved the issues identified by the Boskin Committee? Has the BLS implemented all the principal Boskin Committee recommendations so that the Boskin Committee is now but an interesting footnote in the political economy history of measurement? Or are Congress, the public and the economic policy community still in stubborn denial concerning the continued importance of an upward bias of about 1.1 percentage points annually in the CPI — perhaps the most memorable conclusion reached by the Boskin Committee?

What has transpired since the Boskin Committee descended from the mountain and tabled their conclusions and recommendations? While much could be and perhaps some day will be written about the legacy of the Boskin Committee, given the constraints of time and space, here I will offer only several observations.

### **The First Five Years after the Boskin Committee Report: Updates and More Commissions**

In the opening paragraph of the Conclusion section in both its interim and final report, the Boskin Committee chose to highlight the budgetary implications of their findings:

"Despite important BLS updates and improvements in the Consumer Price Index, it is likely

that changes in the CPI have substantially overstated the actual rate of price inflation. Moreover, revisions have not been carried out in a way that can provide an internally consistent series on the cost of living over an extended span of time. More importantly, **changes in the Consumer Price Index are likely to continue to overstate the change in the true cost of living for the foreseeable future.** This overstatement will have important unintended consequences, including overindexing government outlays and tax brackets and increasing the federal deficit and debt. If the intent of such indexing is to insulate recipients and taxpayers from changes in the cost of living, use of the Consumer Price Index has in the past, and will in the future, overcompensate (on average) for changes in the true cost of living."<sup>3</sup>

Thus, technical issues regarding the net inaccuracy of the CPI were immediately blended in with issues of bias, redistribution and equity by the Boskin Committee.

Initially, some in Congress responded by seeking legislation that would explicitly trim the rise in benefits and reduce the tax-bracket indexing by some given amount off CPI growth, while others argued that the BLS should get it right in the first place and not accommodate arbitrary judgments about CPI accuracy from outside the agency (see, for example, Black, 1997, and Calmes, 1997). The Boskin Committee itself recommended establishing a rotating expert advisory committee that would periodically recommend the "Inflation Adjustment Factor" that in its judgment would best represent the modification of the CPI rise needed to offset the actual change in the cost of living — a recommendation endorsed by Chairman Greenspan and others (Feldstein, 1997).

While the Boskin Committee report was offered at a time when such a "big fix" was

3 Boskin et al. (1995:26-27); Boskin et al. (1996:87-88). In the 1996 final report, the words "for the foreseeable future" and "tax brackets" replaced the words "for the next few years" and "tax rules" that appeared in the interim report. In both the interim and final report, the same selected words appeared in bold.

politically attractive to some, Committee member Zvi Griliches was particularly vocal in arguing that redistribution and CPI measurement issues ought to be separated. Regarding indexing for the retired elderly on pensions, for example, Griliches advocated that the elderly should share the burden with workers receiving flexible wages, stating that “Compensation arrangements should be based on a price index of the domestic value-added components of the various consumption goods — or perhaps on something like the median wage” (Griliches, 1997:172). Griliches then went on to say:

“It seems kind of backwards to say we are going to reduce the rate of growth of transfers to, for example, a person with paraplegia by 1 per cent per year without asking whether the actual support level is the correct level for him. There is a cowardice in our political system that is very depressing. The real question is: What is the right level of transfers? The rate of escalation may have a first-order impact on the budget, but it is second-order relative to the real issues involved.”<sup>4</sup>

After the dust finally settled on budgetary negotiations in 1997 and Congress passed the Omnibus Balanced Budget Act of 1997 that effectively sidestepped CPI indexing issues, what was the next response to the Boskin Commission? Not surprisingly, the solution was quite straightforward: Form some more committees, who will then issue new reports and updates.

First there was The Conference Board, who formed a Study Group on the CPI which, like that of the Boskin Commission, consisted solely of economists and had a clear bipartisan flavor: Paul W. McCracken and James Tobin served as co-chairs, and Charles R. Hulten,

Marvin Kosters and Robert D. Reischauer as study group members.<sup>5</sup> The Conference Board 1999 report has received remarkably little attention, although some of its recommendations overlapped with those of the Boskin Committee and the subsequent National Academy of Sciences Panel. Perhaps the relative obscurity of this report reflects in part its inaccessibility — even today it is priced at \$295 US by The Conference Board.<sup>6</sup>

Responding to a request from Senator Moynihan, in June 1999 the U.S. General Accounting Office (GAO) initiated a study identifying methodological changes the BLS made to the CPI since the Boskin Committee issued its final report in December 1996. It was also asked to obtain the opinions of the five former Boskin Committee members on how much of the bias in the CPI remained after changes were implemented by the BLS. In its February 2000 report, the GAO identified seven changes that had been implemented by the BLS, and three that had been announced but not yet implemented (U.S. Government Accounting Office, 2000). The four remaining members from the former Boskin Committee estimated that these BLS changes in CPI measurement had reduced the annual upward CPI bias from 1.1 percentage points to between 0.73 and 0.90 points.<sup>7</sup>

Next, later in 1999, with sponsor funding from the Bureau of Labor Statistics, and after a series of exchanges among the BLS and others regarding the extent to which the CPI should be conceptualized within the framework of the economic theory of the cost-of-living,<sup>8</sup> the Committee on National Statistics in the Division of Behavioral and Social Sciences and Education at the National Academy of Sciences (NAS) formed

4 Griliches (1997:173). Also see Kuttner (1997) on this point.

5 The Conference Board coordinators of the study were Edgar Fiedler and Gail Fosler (1999).

6 <http://www.conference-board.org/publications/describe.cfm?id=437>, last accessed 1 January 2006.

7 Boskin Committee member Zvi Griliches passed away in late 1999.

8 For one observer’s views of these exchanges on the role of the cost-of-living framework, see Triplett (2001).

a Study Panel of experts “to investigate conceptual, measurement, and other statistical issues in the development of cost-of-living indexes.” (Schultze and Mackie, 2002:2). The study panel was chaired by Charles L. Schultze, with economist Christopher Mackie serving as its Study Director.

The NAS study panel differed from that of the Boskin Committee and Conference Board Study Group in several important respects. First, it was much larger — initially consisting of thirteen experts, whereas both the Boskin Committee and the Conference Board each had only five members. Second, the composition of the NAS panel was considerably more diverse than both the Boskin Committee and the Conference Board, whose members were all economists; the NAS panel included not only economists,<sup>9</sup> but also sociologist Christopher Jencks, psychologist Norbert Schwarz, and statisticians such as Kirk Wolter and Albert Madansky. Thus the NAS panel was considerably more interdisciplinary and heterogeneous. Even among its economists, the NAS panel had a broader mix of empirical and theoretical members than did the Boskin Committee and The Conference Board Study Group.

Third and related, while the Boskin Committee members were seemingly for the most part in consensus regarding the appropriateness of the cost-of-living framework for evaluating the CPI, and in believing that on net there was an upward CPI bias of around 1.1 percentage points per year over the true cost-of-living, by contrast the NAS panel took nothing for granted, and started from scratch, vigorously arguing at considerable lengths amongst themselves on these and many other issues (e.g., the usefulness of the representa-

tive consumer paradigm, Engel curves and the implications of non-homotheticity for index numbers, and the validity of utility maximization in the context of experimental research findings from psychology, behavioral economics, and behavioral finance). Managing such a diverse group of social scientists and statisticians and coordinating the authorship of a very detailed and thorough report was most challenging. Chairman Charles Schultze merits accolades for his able and professional leadership as well as his persistence, good humor and thoughtfulness.

Fourth and finally, issues of budget deficits and overstated rates of inflation were not very visible in the booming and exuberant U.S. “new” economy of the late 1990s and early 2000s. Hence the absence of a strong political economy “big fix” mandate enabled the NAS panel to operate at a more leisurely and academic pace, deliberating issues in greater depth than did the Boskin Committee.

The NAS panel met numerous times for about two years, and then issued its report in late 2001 (Schultze and Mackie, 2002). Other papers in this symposium may comment in detail on its recommendations regarding the competing frameworks of the Cost of Living Index and the Cost of Goods Index, the appropriate role for hedonic regressions, and how these and other recommendations differed from those of The Conference Board and the Boskin Committee. Here I simply note that the NAS report received considerable publicity and discussion, in spite of the National Academy Press inexcusably making the report available online at that time to potential readers only by downloading it one page at a time, instead of as a single easily readable or downloadable PDF.<sup>10</sup>

9 Economists on the NAS panel included Charles Schultze, Ernst R. Berndt, Angus Deaton, W. Erwin Diewert, Claudia Goldin, the late Zvi Griliches, Van doorn Ooms, Robert Pollak and Richard Schmalensee.

10 That policy has since changed somewhat since 2001. Currently the hardback version of *At What Price* is available for \$44.96, the hardback plus a pdf version sells for \$54, a 6.3 mb version of the PDF book sells for \$34, and chapters in pdf format sell for \$5.20 per chapter. Online readers can gain free access to the book, but the format is page-specific, and readers must engage in clumsy commands to read successive pages. See <http://www.nap.edu/catalog/10131.html>, last accessed January 2, 2006.

## The Second Five Years After the Boskin Report: Revisionism?

Subsequent to the Boskin Committee report, the BLS has reaffirmed its commitment to operating within the cost-of-living framework, even though the NAS panel had noted that “for many (perhaps even most) purposes, the distinctions (between the cost-of-living and cost-of-goods approaches) are less important than they might seem.”<sup>11</sup> For example, in its most recent Handbook of Methods, the BLS states:

“Although the CPI cannot be said to equal a cost-of-living index, the concept of the COLI provides the CPI’s measurement objective and the standard by which we define any bias in the CPI. BLS long has said that it operates within a cost-of-living framework in producing the CPI. That framework has guided, and will continue to guide, operational decisions about the construction of the index.”<sup>12</sup>

Even as the BLS began implementing a number of changes recommended by the Boskin Committee, academic research documented that in some categories, the CPI is likely to have been downward biased, rather than upward biased. This research initially was in response to a well-known paper by Nordhaus (1997b) on the price of light, whose price increase he argued would have been overstated using CPI methods by around 1.4 percentage points per year since about 1800. Hulten (1997) argued that if this bias were true for the overall CPI and constant over time, then the implied standard of living for U.S. households in 1800 would have been implausibly low. Gordon (2004) calculated that had the bias in the overall CPI been 1.4 percentage points annually since 1800, then in 1800 the

median U.S. household would have been able to purchase only 1.3 pounds of potatoes per day, with nothing left over for clothing, shelter or other goods. Hulten’s and Gordon’s argument echoes a point made at least back to Triplett (1971), who pointed out that the CPI bias was likely to be negative for some product categories and positive for others, suggesting that the sign of the overall bias was indeterminate.<sup>13</sup>

Noting that in his earlier research he had documented that for durable goods the CPI had been upward biased between 1948 and 1983, former Boskin Committee member Gordon argued that if one makes the plausible assumption that the CPI for durable goods was upward biased over the entire 20<sup>th</sup> century, then in order for real income levels to have been plausible in the early 1900s, some other major component of the CPI must have been downward biased (Gordon and vanGoethem, 2005). Gordon (2004) presents persuasive evidence that for apparel, there has indeed been a downward bias in the CPI, due primarily to the inability to link style changes reliably; moreover, for related reasons hedonic pricing methods are unlikely to mitigate this bias. This downward bias may well persist into the present context.

Gordon and vanGoethem (2005) document CPI downward bias for shelter (tenant rent), reflecting in part non-response by tenants who moved just as rents were being raised.<sup>14</sup> Using a variety of data sources, Gordon and vanGoethem estimate that since 1914 and up through the mid-1980s when the BLS implemented a number of changes, the CPI bias was surprisingly consistent at about -1 percentage points per year. Since the mid-1980s, however, the shelter CPI bias is likely to be negligible.

11 Johnson, Reed and Stewart (2005:3). I have spelled out their COLI and COGI abbreviations.

12 U.S. Bureau of Labor Statistics (2005), as quoted in Johnson, Reed and Stewart (2005). An earlier statement is that by Greenlees (2001).

13 This suggests as well that use of the term “bias” may be unnecessarily pejorative, and that a better description of the measurement goal is to assess the “net inaccuracy” of the CPI.

14 This rationale was apparently first developed by Crone, Nakamura and Voith (2003).

**Table 1****BLS Estimates of Lower and Upper Level Substitution Methodological Variations**

(Annualized Per cent Changes, December 1999 through December 2004)

<b>BLS Index/Difference:</b>	<b>CPI-U-XL</b>	<b>CPI-U</b>	<b>C-CPI-U</b>	<b>Lower</b>	<b>Upper</b>	<b>Total</b>
All Items	2.77	2.49	2.09	0.28	0.40	0.68
CPI Major Groups:						
Food and Beverages	2.9	2.6	2.3	0.3	0.3	0.6
Housing	3.0	3.0	2.8	0.0	0.2	0.2
Apparel	-0.3	-1.8	-2.2	1.5	0.4	1.9
Transportation	2.4	2.1	1.8	0.3	0.3	0.6
Medical Care	4.5	4.4	4.3	0.1	0.1	0.2
Recreation	1.8	1.2	0.7	0.6	0.5	1.1
Education/Communication	2.5	1.9	0.0	0.6	1.9	2.5
Education	6.5	6.3	6.5	0.2	-0.2	0.0
Communication	-1.4	-2.3	-4.8	0.9	2.5	3.4
Other Goods & Services	3.5	3.2	2.8	0.3	0.4	0.7
Special Aggregates:						
Food	2.9	2.6	2.3	0.3	0.3	0.6
Energy	6.8	6.5	6.1	0.3	0.4	0.7
All Items Less Food and Energy	2.4	2.1	1.7	0.3	0.4	0.7
Commodities & Services						
Commodities	1.8	1.3	0.6	0.5	0.7	1.2
Services	3.5	3.3	3.2	0.2	0.1	0.3

Source: Johnson, Reed and Stewart (2005:5), Table 1.

In terms of substitution bias, the Boskin Committee estimated the upper level bias to be 0.15 per cent per year, while that at the lower level was 0.25 per cent, yielding a total substitution bias of 0.40 per cent annually. In 1999, the BLS converted the CPI from its traditional Laspeyres-type computation to one using geometric means at the item strata level, thereby altering lower level price computations for about 61 per cent of the index (Johnson, Reed and Stewart, 2005:4). Consistent with recommendations from the Boskin Committee, The Conference Board Study Group, and the NAS Panel, in 2002 the BLS addressed upper level substitution bias by using a Tornqvist formula and expenditure data from both the base and current period in

the upper level aggregation, and publishing the resulting chained CPI index (“C-CPI-U”) as a separate and distinct index from the CPI-U.<sup>15</sup>

BLS officials have recently published estimates of the effects of these upper and lower level substitution methodological variations on the growth of the CPI, annualized over the December 1999 — December 2004 time period. The BLS results are reproduced in Table 1, where CPI-U-XL is the (now experimental) traditional Laspeyres index, CPI-U employs geometric mean aggregation at the lower level, C-CPI-U is the experimental chained CPI, Lower is the difference between CPI-U-XL and CPI-U, Upper is the difference between CPI-U and C-CPI-U, and Total is the sum of Lower and Upper.

15 Since expenditure data are only available with a time lag, a geometric means formula is used to estimate the indexes initially, and then the figures are revised when the final expenditure data become available. Another index, based on the old Laspeyres CPI methodology, is now published experimentally, and is dubbed the “CPI-U-XL” index. See Johnson, Reed and Stewart (2005:4-5).

As expected, with easier substitution apparel has a large lower effect, whereas housing and medical care, with little lower level substitution, only have small lower level effects. Overall, the lower level impact is estimated at 0.28 per cent annually, while that for the upper level is larger at 0.40 per cent, yielding a total substitution effect of 0.68 per cent per year. However, BLS notes that while this upper level impact is on average 0.4 per cent annually, between 2000 and 2004 it varied considerably, being much larger in 2000 than in later years at 0.80, 0.28, 0.36, 0.17 and 0.41, respectively, between 2000 and 2004.<sup>16</sup>

In summary, regarding substitution bias, while the lower level substitution bias has been mitigated by implementing a geometric means procedure, at the upper level the difference between the experimental chained index and the flagship CPI-U remains considerable at about 0.4 per cent per year, although there is some evidence suggesting a decline in more recent years.

A set of issues receiving considerable attention in the Boskin Committee and especially the NAS Panel report was that of quality adjustment and hedonics. Hedonic methods have been used since February 1988 in the rental housing component of the CPI to make minor adjustments based on the aging of the housing units sampled, and have also been used in the apparel component of the CPI since January 1991. These two adjustments have tended to increase rather than decrease the rate of CPI growth — by 0.39 percentage points per year for apparel compared to previous methods, and by 0.31 points for the affected housing indexes (Johnson, Reed and Stewart, 2005:11).

Between January 1998 and October 2000 the BLS introduced hedonic regression adjustments for eleven product classes, including computers (January 1998), televisions (January 1999), audio

equipment and video cameras (January 2000), VCRs and DVD players (April 2000), refrigerators/freezers, microwave ovens and college textbooks (July 2000), and washers and dryers (October 2000). Excluding housing, the combined weight of the item categories undergoing hedonic price adjustment is about 3.01 per cent, and if one excludes in addition apparel, the weight is but 0.85 per cent. Hence, hedonic adjustment is of relatively minor importance. In some cases the hedonic adjustments increased the CPI (washers), whereas in other cases they decreased it (dryers); excluding personal computers the net effect of hedonic price adjustment on the growth of the all-item CPI has been less than one hundredth of one per cent per year, i.e. 0.005 per cent (Johnson, Reed and Stewart: 9-11).

Personal computers have long been the focus of hedonic price adjustment research.<sup>17</sup> Even as the NAS panel was deliberating, the BLS began considering the impacts of employing hedonic methods in real time for personal computers, such as those developed by Ariel Pakes (2003). However, since September 2003 the BLS has replaced hedonic-based adjustments for personal computers with attribute pricing using web-based specific manufacturer's component cost information to estimate values for model features. According to the BLS,

“The attribute cost adjustment process has a database of 250 to 300 variables/items which are updated monthly. This alternative method for quality adjustments allows for more adjustments to be calculated, as many of the items that change in a PC are not specifically covered in a hedonic model.”<sup>18</sup>

The BLS reports that compared to the previous hedonic method, between April 2004 and September 2004 the new attribute method resulted in a slightly higher decline in the PC

16 Johnson, Reed and Stewart (2005:7), Table 2. All items lower level effects were less volatile, though falling over the same time period, from 0.30 per cent in 2000 to 0.23 per cent in 2004.

17 See, for example, Berndt and Rappaport (2001) and the references cited therein.

18 Johnson, Reed and Stewart (2005), p. 12 and footnote 24, p. 16.

index, an annualized rate of -9.78 per cent compared to -8.58 per cent for the hedonic method (Johnson, Reed and Stewart, 2005: 13).

In summary, while a modest amount of hedonic pricing was implemented in the BLS' CPI program since the Boskin Committee report, since 2000 no new categories have undergone hedonic adjustment, and that for personal computers has been dropped, replaced with an attribute approach. While hedonic price adjustments to the CPI have received considerable attention and been the source of much controversy, in fact their contribution to the CPI is currently miniscule.

Finally, regarding updating the market basket, since 2002 the BLS has updated expenditure weights based upon consumer expenditure surveys every two years, considerably more rapidly than the roughly every ten years in the past. The lag time between survey initiation and completion has also been shortened. BLS estimates that for 2004 the increase in the CPI-U was 0.06 percentage points lower than it would have been had the old weights been utilized. Moreover, the outlet sample is now rotated every four rather than five years, resulting in a more up-to-date basket of goods, particularly high tech goods, according to the BLS (Johnson, Reed and Stewart, 2005:13). Just how up-to-date the sampled items are remains somewhat unclear, however. Chwelos, Berndt and Cockburn (2005), for example, have reported that personal digital assistants were not an explicit category within the CPI; moreover, they find that for these PDAs, hedonic adjustments result in substantially higher rates of measured price decline than does the matched model method. During the recent Christmas shopping season, high tech communications equipment integrated with cameras and other personal filing information have become leading-selling electronic items. It would be useful and perhaps reassuring if the BLS periodically announced what new types of

products were being captured in its changing CPI market basket.

### **Major Unfinished Business: The Medical CPI (and PPI and PCE Deflator?)**

The Boskin Committee assigned a medical care CPI bias of 3.0 percentage points annually, noting in particular that in 1995-1996 the PPI (which they interpreted as to some extent taking changing outcomes into account as contrasted with CPI repricing of fixed inputs) had risen about 2.0 percentage points more slowly than the CPI, especially in the physician and hospital categories (Boskin et al., 1996:59).

Three major recommendations of the Boskin Committee were that: (i) the weight assigned medical care should not be based just on consumers' out of pocket medical care and health insurance expenditures, but it should also include employer-financed health insurance contributions, as well as expenses paid by Medicaid and Medicare, thereby approximately doubling the weight of medical care in the CPI, from 7.4 per cent to about 16 per cent (Boskin et al., 1996:58); (ii) that the medical care category should receive a substantial component of the CPI's future research investment; and (iii) "...we strongly endorse a move in the CPI away from the pricing of health care inputs to an attempt to price medical care outcomes." (Boskin et al., 1996:60)

In comparison, the NAS panel recommended:

- that the BLS compile and publish an "expanded scope medical CPI" that included employers' (but not Medicare and Medicaid) health insurance payments;
- the BLS convene a task force in collaboration with the Centers for Medicare and Medicaid Services and others to implement construction and publication of a total medical care expenditure price index, encompassing purchases from all health care

- payers — governments, private third-party insurers, and consumers;
- against the BLS making immediate attempts to adjust medical care expenditures for changes in outcomes quality (mortality, morbidity and quality of life), since the NAS panel members recognized “the formidable measurement challenges and do not know how best to proceed,” as well as the need for “considerably more research, much of it interdisciplinary”; (Schultze and Mackie, 2002:190) and
  - that the BLS consider developing a disease- or diagnosis-based elementary unit for pricing episodes of treatment rather than the current input-based “industry” or medical care strata, initially experimenting with 15 to 40 randomly chosen diagnostic categories drawn from commercially available retrospective medical claims databases (Schultze and Mackie, 2002:188-189).

Regarding this last recommendation, the NAS panel recognized that in 1998 the BLS aggregated inpatient and outpatient hospital services into a single stratum, thereby allowing for substitution between them, but also noted explicitly that hospitals were only one area of potential bias from input substitution (Schultze and Mackie, 2002:188).

How has the BLS responded to these differing, and at times inconsistent, recommendations? First, regarding the use of an expanded scope medical CPI that includes employers’ contributions to employees’ health insurance and medical care costs in weighting the medical care component of the CPI, as far as I can tell this has not received much attention from the BLS. Indeed, a recent presentation by the BLS to the Federal Economic Statistics Advisory Committee (“FESAC”) noted the recommendation, but did not discuss it in any detail, other than pointing out that given the new

2002 weights from the Consumer Expenditure Survey, as of December 2004, the medical care weight was 6.13 per cent, down from the 7.4 per cent cited by the Boskin Committee final report.<sup>19</sup> However, the Bureau of Economic Analysis is examining weight and other medical care price index issues, in part because the Personal Consumption Expenditure component of the implicit Gross Domestic Product price deflator weights medical care by total expenditures, rather than simple out-of-pocket costs (Aizcorbe and Nestoriak, 2005).

Second, regarding inconsistent recommendations from the Boskin Committee and the NAS panel concerning incorporation of changing health care outcomes and other quality adjustment into the medical CPI, as best as I can determine BLS has not done any in-house research in this area, and thus it has implicitly agreed with the NAS panel rather than the Boskin Committee recommendation. Recent research by David Cutler and Rosen (2005), as well as by Daniel Slesnick (2005), is beginning to address these quality adjustment and outcomes issues. Provocative research findings on real output growth and price declines in the mental health sector during the 1990s have also been reported by Berndt, Busch, Frank and Normand (2005).

Third, regarding BLS collaboration with the Centers for Medicare and Medicaid Services, as well as with other agencies, to construct and publish a total medical care expenditure price index, while the opportunities here are considerable, particularly as the Medicare Part D Drug Benefit has now come into effect (on this, see, for example, Platt and Ommaya, 2005), as best I can determine, relatively little has been accomplished to date in this context.

Fourth, concerning experimental episodes-based price indexes based on retrospective claims data, here the BLS has undertaken a

19 Johnson, Velez, and Bradley (2005), slides #16 and 6.

research initiative jointly with Medstat, a commercial retrospective medical claims data base vendor. Using monthly data from January 1998 through December 2002, the researchers utilized an “episode grouper” from Medstat to group claims into disease-treatment episodes, and then randomly sampled 40 conditions using alternatively expenditure vs. population (simple count of number of episodes treated) weights. Medstat claims were drawn from and compared with BLS price quotes from three metropolitan areas — Boston, New York and Philadelphia. Both small samples (the same size as those used by the BLS in collecting data for the CPI) and large samples (about ten times the BLS sample size) were used to create alternative price indexes (Medstat, 2004).

The central finding from this research reported by the authors is that for the most part, while there appear to be very different trends among cities and methods over shorter time periods, after 48 months the cumulative estimated price changes for the various methods are not statistically different. In general and with several exceptions, while point estimates of the disease-based price indexes tend to suggest smaller price index growth after 48 months than does the medical CPI for each of the three cities, the bootstrap-based estimated standard errors are very large (a common characteristic of medical claims data, where a relatively small number of outliers observations can make means relatively volatile), resulting in the inability to reject the null hypothesis of no difference between them at usual p-values (Song et al., 2005).

There are a number of shortcomings to this research, and I have argued elsewhere that the absence of evidence here should not be inter-

preted as evidence of absence (Berndt, 2005). The BLS has acknowledged some of these issues, particularly those involving the large sample variances in both episode prices and utilization across cities and over time;<sup>20</sup> much detailed empirical investigative research needs to be done regarding implications for price and quantity measurement of using alternative commercially or publicly available episode groupers.<sup>21</sup> While these preliminary results are perhaps initially disappointing, it is reassuring to see the BLS commit to carrying out this NAS panel recommendation, and I hope that the BLS, BEA and others will continue to engage fully in this important line of research. Moreover, while the retrospective claims data bases do not in general include the uninsured, it is important that future research also focus on price and quantity measurement of health care received by the uninsured.

One issue not raised by the various committees and panels involves an unforeseen development, and that is adoption of the Medicare Part D Prescription Drug Benefit as of January 1, 2006. For those elderly currently uninsured or receiving only partial prescription drug benefits, the new Medicare Part D benefit will likely result in reduced prices and out-of-pocket payments; for those previously receiving drug benefits from private pension plans, whether out-of-pocket payments and prices are greater or less than pre-January 1, 2006 depends on the nuances of what looks like very heterogeneous benefit designs among various private plans. How the BLS ideally should and will in fact deal with these new out-of-pocket payment regimes, and how they ought and will be linked to previous payment structures, raises very challenging

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20 Johnson, Velez and Bradley (2005), especially slides #17-19.

21 On this, see Berndt (2005) and Aizcorbe and Nestoriak (2005), slide #16. I note in passing that while the NAS panel report recommended (Schultze and Mackie (2002:189) that the BLS pay particular attention to the possibility that the retrospective claims based episode treatment price index would “jump” at the linkage point when weights changed (i.e., annually in December — January), this issue was not addressed at all by Song et al. (2005).

new issues, as well as older ones involving non-linear pricing schedules and substitution among insurance plans.<sup>22</sup>

A striking feature of the current environment, and a stark reminder of how public discussion of CPI measurement issues emanates from political economy considerations, involves prescription drugs and the elderly. In the 1990s, there was great concern about how uninsured senior citizens were being forced to pay cash prices for prescription drugs, prices that were not benefiting from the growing buying power of managed care organizations, and that as a result prescription drug prices for uninsured senior citizens were rising more rapidly than the prescription drug component of the CPI. Adjusting seniors' entitlement payments downward from growth in the CPI as the Boskin Commission seemed to recommend, it was argued, was therefore truly unfair. Today one does not hear any discussion about the Medicare Part D drug benefit providing a rationale for de-linking entitlement escalation from growth in the CPI, since the prescription drug component of the CPI is now likely to overstate price growth for those now enjoying benefits of Medicare Part D.

### Concluding Remarks

Much progress has been made by the BLS over the years in implementing methodological changes that have helped reduce the net inaccuracy of the CPI (and, implicitly, of the PPI as well). While understandably it must be tiring and frustrating for BLS officials to be perpetually accused of biasing upward the CPI, I believe the BLS and its professional staff have generally responded professionally and constructively to recommendations from the various committees and study groups that have released reports

examining the net inaccuracies of the CPI. The academic community, including former commission members, has also demonstrated a willingness to reconsider and perhaps even reverse earlier conclusions regarding CPI bias. Professional confidence in the reliability of the CPI has I believe increased since publication of the Boskin Committee report in 1996.

But much research and hand-to-hand combat with microeconomic data remains to be done, particularly, I believe, with the medical care-related price indexes. While the United States is somewhat unique in the substantial role played by the private sector in paying for medical care, issues of price measurement, cost-effectiveness, and adjusting medical expenditures for changes in quality and health care outcomes pervade all countries — even those that provide health care insurance on a universal basis.<sup>23</sup>

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22 Some of these issues are discussed in Aizcorbe and Nestoriak (2005), slides #13-15, and in Johnson, Velez and Bradley (2005), slides #12-13 and 23-26.

23 For a discussion linking price index research in health care to cost-effectiveness analyses, see Triplett (1999).

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