Guidelines for Quality Adjustment of New Vehicle Prices

(revised September 2007)

Introduction

This material defines and describes the concepts and procedures followed by the U.S. Bureau of Labor Statistics (BLS or the Bureau) in adjusting quoted prices of new vehicles for changes in quality. These adjusted prices are then used in the compilation of the following official BLS price indexes: Consumer Price Index (CPI), Producer Price Index (PPI), and the U.S. Import and Export Price Indexes (IPP). Purposes are to: (1) specify the basic information needed to make adjustments, (2) indicate how data will be used, and (3) aid users of price indexes in interpreting adjustments. The descriptive categories the Bureau uses to adjust for quality changes in a vehicle can be thought of in terms of reliability, durability, safety, fuel economy, maneuverability, speed, acceleration/deceleration, carrying capacity, and comfort or convenience. Some physical characteristics included in these categories are not susceptible to precise, direct measurement. However, many descriptive categories either do have, or are related to, a characteristic that has a discrete measurement that can be evaluated and compared to the previous year's model.

In the process of determining quality improvement and/or deterioration, staff at BLS seek answers to such questions as:

- How is the functionality of the feature or related components different?
- How is the warranty affected by the change?
- How is the reliability of the feature or related components different?
- How is the performance of the feature or related components different?

(These questions are examples and not the complete criteria for quality adjustment evaluation.)

When examination shows that a quality change has occurred, staff at BLS determine the value of the embodied change in terms of resource costs so reported prices can be adjusted to reflect a constant quality index. BLS defines resource costs as all direct and indirect costs, including research and development incurred in the manufacture or purchase of components and assembly and installation associated with an equipment change, plus the manufacturer's established mark-up, plus—in the case of the CPI—the retail margin.

BLS requests that model changeover information be provided early in September each year, typically when the new models are introduced, for first inclusion into the October price indexes. For purposes of the CPI, the information will be included in the index when the sales for the new model year vehicle exceed the sales of the prior year model. Dollar values for changes are requested no later than October 15th, for public introductions made from mid-September to early October. When model changeovers occur at other times during the year, the information will be collected and evaluated for immediate input to indexes and used in the compilation of figures for the annual press release entitled *Report on Quality Changes for [year] Model Vehicles*.

Criteria for Quality Adjustments

Quality changes for which adjustment are made include those structural and engineering changes including but not limited to:

- Changes that affect the safety of occupants of the vehicle as required by legislated federal or State standards, and for purposes of IPP export items, applicable foreign market standards. Changes in safety features not required by legislated standards will be evaluated the same as other non-mandated changes.

- For purposes of the PPI and IPP, changes that affect the healthfulness of the outside environment as required by legislated federal or State standards, and for purposes of IPP export items, applicable foreign market standards. Changes to meet emission standards will be allowed prior to the effective date of the standard. In 1999, after careful review, the Bureau decided that it would no longer treat modifications to goods and services that are made solely to meet air quality standards as quality improvements in the CPI. Price increases associated with such modifications are treated as increases in the index. This decision should not be construed as a judgment that the reduction of air pollution from automobiles is without value. (For a detailed economic rationale for this treatment, see "The Treatment of Mandated Pollution Control Measures in the CPI" on the Internet at www.bls.gov/cpi/cpitreat.htm.)

- Changes in mechanical or electrical features that affect the overall operation or efficiency of the vehicle, or the ability of a component to perform its function, such as changes affecting steering, braking, stability, engine horsepower, traction control, transmission and fuel systems

- Changes in design or materials that affect the length of service or durability, need for repairs, or strength of the item or performance, such as stronger bumper, halogen headlamps, flexible body panel, or platinum-tipped spark plugs

- Changes that affect comfort or convenience, if supported by evidence of a functional improvement, such as redesigned seat belts, remote door locks, theft deterrent systems, navigation systems, satellite radio hardware, or changes in storage capacity

Manufacturer changes for which adjustments will not be made are:

- Style, or changes in appearance designed solely to make the product seem new or different, such as trim, wheel design, colored bumpers, etc.

- Physical changes in separate components or parts that do not affect functionality or the performance of the component, such as simplification of components for assembly purposes or serviceability

- For purposes of the CPI only, changes solely to meet air pollution standards on models introduced in January 1999, or thereafter, that do not otherwise provide direct value to the consumer. The PPI and IPP will continue to make these adjustments.

Pricing and Adjustment Procedures

Selection of Series

Models and associated optional equipment priced for BLS are originally selected through probability sampling. These models continue to be tracked through the life of the sample providing the vehicle 1) is produced and shipped by the same manufacturer; 2) has the same body type; and 3) remains similar in overall quality as determined by feature comparisons rather than line and model name assigned.

When a model no longer meets these criteria, a new model must be selected that most closely resembles the previous model based on the criteria above, in the listed order of importance. Optional equipment selected during the sampling process will continue to be tracked on the models priced by BLS, subject to availability.

Grouping Related Changes

Related changes should be grouped together. Related changes and/or additional parts required to accommodate the principal change in a component assembly are considered part of the overall quality change when improvement can occur only in combination. This procedure provides a better basis for deciding when changes in one

component are offset by changes in another. Redesigned parts necessitated by the principal change in a particular component may result in savings that offset part of the cost of the principal change.

Requested Data

To facilitate evaluation, resource cost data provided by the manufacturers that include mark-up cost, are divided into separate categories: Federal/State safety standards, Federal/State emissions standards, fuel economy, warranty changes, and other changes. "Other changes" can be further separated into categories for standard equipment made optional and optional equipment made standard. Furthermore, manufacturers are requested to submit figures for miles per gallon (mpg), curb weight, interior volume, horsepower (hp), wheelbase (wb), overall length, and fuel tank capacity from one model year to the next. In addition, manufacturers are asked to include a brief explanation of the changes.

Application of Value

- If BLS determines an entirely new standard feature or untracked option that becomes standard meets the criteria for quality adjustment, resource costs associated with the feature are applied as the value of adjustment to the price.

- When a change involves modification or replacement of an existing standard feature or tracked option, and BLS determines the modification or replacement meets the criteria for quality adjustment, the incremental resource costs from one model year to the next are applied as the value of adjustment.

- When a previously standard feature is made optional-at-extra-cost, the optional feature is added to the tracked vehicle's product specification and its price added to the new model total price with no quality adjustment.

- If a standard feature or tracked option is completely removed from the vehicle, the resource costs are applied as a negative value of adjustment to the price.

Mark-up to Retail

For purposes of the CPI and the annual press release, the retail quality adjustment value is estimated by marking up the resource cost quality adjustment value by the ratio of the manufacturer's suggested retail delivered price for the equipped vehicle to the price charged by the manufacturer to the dealer for the identical vehicle.

The value applied by the IPP and PPI is the actual resource cost that is provided by the manufacturer. This value is not marked up to retail price levels.

Warranties

Extensions in either coverage or duration of a warranty are considered quality improvement. Following the same principle, any reduction in warranties are applied as the basis for quality deterioration. If an improvement is made to a component covered by a warranty that decreases the likelihood the component will fail, this should reduce warranty costs to the manufacturer. Assuming no corresponding drop in the price in the warranty, a negative quality adjustment would be necessary.

Manufacturers are requested to provide details of warranty changes and changes in components covered by the warranties along with the value of these changes. One adjustment to the claim may be allowed based on a better estimate following one year of actual warranty pay-out experience.

The value applied by the IPP and PPI would be the resource cost that is provided by the manufacturer. The CPI would take this resource cost and mark it up to a retail cost.

Handling Special Situations

No guidelines can cover all situations that will arise, with respect to changes in products as complicated as motor vehicles. Experience has shown, however, that certain types of special situations can be anticipated. For example:

Essentially New Type of Vehicle

Periodically, product lines are changed so radically that it is not feasible to establish comparability of a current model with any previous model. Such situations will be handled by treating the new model as if it were an entirely new product, i.e., linking it into the index (replacing the old model with the new model that results in no change in price index level for that series).

Changed Quality Not Proportional to Estimated Value

Occasionally, new technology makes it possible to achieve recognizably better quality at no increase in cost—or possibly even at lower cost. While the values associated with these changes provide BLS with reference information, they are not reflected in BLS quality adjustment amounts.

Inadequate Information

In some cases, manufacturers do not find it feasible to supply adequate information regarding costs involved in quality change. If the quality change is minor, and is in no way related to the ability of this product to perform its function, it will be ignored, and prices between pricing periods will be compared directly. However, if the quality change does impact on the product's ability to function differently, BLS will estimate its value from any pertinent information or advice available.

Values Less than $5.00

Except for items required by a federal mandate, changes that have values less than $5.00 will be considered insignificant and, therefore, ignored, unless there is an accumulation of similar changes that might significantly affect the evaluation process.

Aerodynamics

BLS will allow aerodynamic changes, when wind tunnel results—or other supporting evidence of a net overall improvement to the vehicle performance—are provided and cost data is available for each individual change.

Noise, Vibration and Harshness (NVH)

BLS will allow interior noise changes provided consistent measures (at idle, full throttle acceleration, 70 mph cruising, or 70 mph coasting) show an improvement, measured in decibels (dB), from the previous year; and cost data associated with these changes are available. Changes in features resulting in adjustments to overall vibration and harshness will be allowed, when cost data are available and substantiated by measurements.

Example Only

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Summary OF 2007-2008 Model Quality Changes

Model year	Mpg Hwy/city	Horse-power	Curb weight (lbs)	Height (in.)	Length	Width	Wheel base (in.)	Fuel tank (gal)
2007	26/19	190	4,160	58.1	186.2	69.1	106.1	15.9
2008	26/19	190	4,165	58.1	186.2	69.1	106.1	15.7

Type of Change	Resource Cost
Safety	
• Reinforced beams to protect passenger (FMVSS 214)	$120.00
• Headliner safety foam and plastic tubing added (FMVSS 201)	11.00
• Fuel system integrity in rear offset crash (FMVSS 301)	29.00
• Side curtain air bags	140.00
Emissions	
Changes made to the fuel tank to meet Low Emissions Vehicle (LEV II) requirements. The tank was modified high/mid blow molded plastic; added 2 tank assemblies.	84.00
Fuel economy	
New gear revision to reduce engine rpm and improve fuel economy by 0.1 mpg	22.00
Warranty changes	
3 year/36,000 miles to 4 years/70,000 miles	124.00
Other changes	
Low tire pressure warning added	45.00
Untracked option made standard equipment	
Floor mats	12.00
Feature or option deleted	
MP3 player deleted	(6.00)

Type of change	Add price
Standard equipment made optional	
Adding optional power adjustable pedals price	150.00