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**DOLLAR-VALUE LIFO DOUBLE EXTENSION, LINK-CHAIN AND  
INVENTORY PRICE INDEX COMPUTATION**

**DUAL INDEX METHODS**

***ISSUE***

Whether, under the circumstances described below, a taxpayer, may use a different method of determining its current-year cost for purposes of converting its ending inventory from current-year cost to base-year cost (“deflator index”) from the method it uses to determine its current year cost for purposes of converting its increment at base-year cost to current-year cost (“increment valuation index”).

***CONCLUSION***

Under the circumstances described, a taxpayer may not use a different method of determining its current-year cost for purposes of converting its ending inventory from current-year cost to base-year cost (“deflator index”) from the method it uses to determine its current year cost for purposes of converting its increment at base-year cost to current-year cost (“increment valuation index.”). This conclusion applies to all taxpayers using the dollar-value LIFO method, including those using the IPIC variant.

***FACTS***

Most taxpayers maintain their underlying books and records on a first-in, first-out (FIFO) basis.<sup>2</sup> Taxpayers that elect to use the dollar-value, last-in, first-out (LIFO) method of inventory accounting typically make “top sided” adjustments to these books and records to convert them to LIFO values for both financial and tax accounting purposes.

These FIFO books and records generally parallel the actual cost of the most recently purchased or produced goods. Taxpayers may also determine the current-year cost

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<sup>1</sup> This Coordinated Issue Paper is not an official pronouncement of the law or the position of the Service and cannot be used, cited or relied upon as such.

<sup>2</sup> It is recognized that many taxpayers are actually using other methods of valuing their inventory including a moving average price (MAP) computation rather than a proper FIFO computation. The Service has ruled that the use of a MAP is not proper. See Rev. Rul. 71-234.

of items making up a pool by reference to the actual cost of the goods purchased or produced during the taxable year in the order of acquisition (“earliest acquisitions cost”), using average acquisitions cost, or under such other method acceptable to the Commissioner.

Taxpayers using the link-chain method that elect the earliest acquisitions cost method of determining their current-year cost typically use a “dual index.” Under this method, a taxpayer uses the most recent purchase costs to determine a deflator index and earliest acquisition costs to determine an increment valuation index. Taxpayers using the double-extension method only need to determine the ratio of current-year cost to base year cost for increment valuation purposes.<sup>3</sup>

In contrast, Taxpayers using the link-chain method<sup>4</sup> derive their base-year costs by “deflating” their ending inventory at current-year cost by a cumulative index. The cumulative index is the product of annual measures of inflation for all prior years. Thus, link-chain taxpayers typically determine their current-year cost for purposes of their deflator index using most recent purchase costs and separately determine an increment valuation index based on an estimate of earliest acquisition costs. In times of steadily rising cost of inventory, an increment valued at earliest acquisitions cost will have a lower value and, therefore, will result in lower gross income than an increment valued using the most recent purchase costs method.

Very few taxpayers, however, determine their earliest acquisitions cost in compliance with the regulations based on an item-by-item, invoice-by-invoice approach. Various “shortcut” methods of determining current-year cost under the earliest acquisitions method are independently evaluated in the Coordinated Issue Paper entitled “Dollar-value LIFO Earliest Acquisition Method,” dated, December 6, 1995.

Moreover, even though the regulations authorize the use of “other” proper methods acceptable to the Commissioner, the Service has not explicitly sanctioned the use of a particular “other” method. Accordingly, the Service has encountered very few, if any, Forms 970 on which the taxpayer elected to use an “other” method of determining current-year cost.

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3 Although, technically a taxpayer using the double-extension method could also use the increment valuation index (i.e., the ratio of current-year cost to base-year cost) as a deflator index this would be an unnecessarily redundant step in the LIFO computation.

4 A taxpayer may use the link-chain method only if the taxpayer can demonstrate to the district director that the use of either an index method or double-extension method would be impractical or unsuitable in view of the nature of the pool. Under the link-chain method each year's ending inventory is restated at beginning-of-the-year costs rather than fixed, base-year costs. An annual index (or annual link) is computed each year by comparing ending inventory at current-year cost to ending inventory at the beginning-of-the-year cost. The cumulative index is the product of all the annual indexes. The base-year cost of the ending inventory is calculated by taking the actual current-year cost of the ending inventory and dividing it by the cumulative index. This division restates the ending inventory at base-year cost. Any increase or decrease in inventory is determined by comparing beginning inventory at base-year cost with ending inventory at base-year cost. Any increase in inventory (expressed in base-year dollars) is then converted into current-year cost using the cumulative index. The end result is the current year cost of the increase.

## **LAW**

Section 472(a) of the Internal Revenue Code allows a taxpayer to elect the LIFO inventory method. The use of LIFO, however, must be in accordance with the regulations, must be applied on a consistent basis, and must clearly reflect income. In addition, inventories on LIFO must not be valued lower than cost.

Treas. Reg. § 1.472-8 prescribes the operating rules for the use of the dollar-value method of pricing LIFO inventories. Section 1.472-8(e)(1) is the basic provision outlining the use of the double-extension, the index, and the link-chain methods of pricing LIFO inventories. Among other provisions, this section states that the appropriateness of the index and the accuracy, reliability, and suitability of the use of such index must be demonstrated to the satisfaction of the District Director in connection with the examination of the taxpayer's income tax returns.

Treas. Reg. § 1.472-8(e)(2) prescribes the operating rules for the use of the double-extension method. It requires the extension of each item in the inventory at both base-year cost per unit and current-year cost per unit. Section 1.472-8(e)(2)(ii) provides that a taxpayer is allowed to determine the current-year cost of items making up the inventory by reference to:

- (a) the actual cost of the goods most recently purchased or produced during the year;
- (b) the actual cost of the goods purchased or produced during the year in the order of acquisition;
- (c) the average cost of the goods purchased or produced during the year; or
- (d) any other proper method which clearly reflects income.

Treas. Reg. § 1.472-8(e)(2)(iv) states in part:

To determine whether there is an increment or liquidation in a pool for a particular taxable year, the end of the year inventory of the pool expressed in terms of base-year cost is compared with the beginning of the year inventory of the pool expressed in terms of base-year cost. When the end of the year inventory of the pool is in excess of the beginning of the year inventory of the pool, an increment occurs in the pool for that year. If there is an increment for the taxable year, **the ratio of the total current-year cost of the pool to the total base-year cost of the pool must be computed. This ratio** when multiplied by the amount of the increment measured in terms of base-year cost **gives the LIFO value of such increment** (emphasis added).

Treas. Reg. § 1.472-8(e)(3)(iii)(B)(3) provides the rules for the Inventory Price Index Computation (IPIC) method. It states that taxpayers that do not use the retail method must select indexes most consistent with the taxpayer's method of determining current year cost. Taxpayers using the retail method, on the other hand, must use the selected indexes applicable to the last month of their taxable year.

## ***DISCUSSION***

### **A. Double-Extension and Link Chain Methods – Conventional Dollar-Value LIFO**

Treas. Regs. § 1.472-8(e)(2) allows a LIFO taxpayer to elect the method of accounting used to compute the current cost of the LIFO pool. Once the method of determining current-year cost is established, the base cost of the pool must be determined. Under the double-extension method, the base cost is derived directly. Under an index method, the base cost is derived from a sample that produces the cumulative index of inflation. Under the link-chain method, annual inflation is computed and multiplied by the prior year's cumulative inflation to compute the current year cumulative index of inflation and, ultimately, the base year cost of the pool.

The base cost is then compared to the prior year's base cost to determine whether an increase or decrease to the "dollar-value" of the quantity of goods on hand has occurred. Any increase is called an increment, or layer. If there is an increment for the taxable year, the ratio of the total current year cost to the total base year cost of the pool must be computed for a double extension method taxpayer. A taxpayer that uses the link-chain method has already computed this ratio in the computation of the base cost. This ratio, when multiplied by the amount of the increment measured in terms of base-year cost, gives the LIFO value of such increment. For any particular pool, there can be one, and only one, ratio of current cost to base cost. The ratio is also referred to as the cumulative index of inflation. All the computational examples set forth in the regulations are consistent with the use of a single ratio, or cumulative index of inflation. The regulations contain no other reference to indicate that a second definition of the ratio or cumulative index of inflation was intended. Therefore, the assumption stands that none was intended.<sup>5</sup>

Although these regulations address the double-extension method, no specific guidance is provided on the link-chain method. Therefore, conceptual congruency between the two methods should be applied to the extent possible. This is particularly true because of the preference stated in the regulations for the use of the double-extension method.

Since a single index is used under the double-extension method, it should also be used under the link-chain method to achieve conceptual parity between the two methods. Basically, the only difference between the link-chain and double-extension methods should be the cost reconstruction period of new items. Under the link-chain method these changes are measured annually. In contrast, under the double-

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<sup>5</sup> See, e.g., *Consolidated Manufacturing, Inc. v. Commissioner*, 111 T. C. No 1 (July 21, 1998), in which the Tax Court concluded that if Congress had intended a certain method of accounting to be acceptable it would have provided for such in the underlying statute. Likewise, if the Service intended for a link-chain taxpayer to use a dual index, it also would have so provided. Although not cited as authority, see also LTR (TAM) 9444002 providing "[w]e believe the regulatory language at issue contemplates the use of a single index both for determining the amount of ending inventory at base-year retail prices and for converting an increment expressed in base-year retail prices to current-year prices." This same logic clearly also applies to base-year costs for taxpayers that do not use the retail method.

extension method the changes are measured from the base-year to the current year. This difference can readily be accommodated through using a single cumulative index under the link-chain method. Accordingly, the link-chain method itself provides no legal justification for using a dual index.

In general, taxpayers using the dollar-value LIFO method already have compiled the necessary books and records to support a current-year cost based on most recent purchases. Thus, many taxpayers opt to elect the most recent purchase method of determining current costs to avoid having to also maintain books and records supporting the earliest acquisitions cost method.

Earliest acquisitions cost must be computed by determining the quantity of each particular item which is contained in the taxpayer's ending inventory and by comparing a sufficient number of the same items purchased or produced by the taxpayer during the year, commencing with the first day of the year and working forward until the number of units which are priced equals the quantity of such items in the taxpayer's ending inventory. To properly determine the cumulative index of inflation based on earliest acquisitions cost effectively requires taxpayers to compute their inventory value on the earliest acquisitions cost method. This is required even though the taxpayer is also required to compute their inventory value based on most recent purchase costs for other tax<sup>6</sup> and non-tax accounting reasons.

Historically, the Service has indicated that it might, in rare situations, permit taxpayers using the link-chain method to use a dual index, provided the dual index method results in an inventory valuation that is substantially the same as if the ending inventory was double extended on an item-by-item basis.<sup>7</sup> Significantly, however, in order to demonstrate that this is in fact the case, the taxpayer must have the requisite foundation supporting an accurate index based on earliest acquisitions cost. This earliest acquisition index would then be used as both the deflator index and the layer valuation index. Once a system is in place to complete the earliest acquisition computation, there effectively is no economy of effort derived from using a dual index and the earliest acquisition based deflator index would be used to value any current layer.

In electing to use the earliest acquisitions cost method the taxpayer assumes responsibility of maintaining the books and records to support the method. In fact, many taxpayers forebear using the earliest acquisitions cost method because they do not want to assume what they consider to be an additional burden, notwithstanding the fact the method generally results in lower ending inventory values. Thus, in order to apply the tax law with integrity and fairness to all, a consistent and uniform rule should apply. That rule requires that the layer be valued at the ratio of current cost to base cost.

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<sup>6</sup> A taxpayer is required to value inventory under the FIFO method for computing their earnings and profits and adjusted current earning for alternative minimum tax purposes.

<sup>7</sup> This was the standard adopted in the all-industries Coordinated Issue Paper on Earliest Acquisition Cost and has been set forth in other non-precedential rulings ( e.g., LTR (TAM) 9332003).

This record-keeping requirement, however, will not place an undue burden on the taxpayer. The burden of maintaining records that enable a taxpayer to properly determine the LIFO value of the inventory under a true earliest acquisitions cost method is neither greater nor lesser than the burden under the most recent purchases cost method. The fact that the taxpayer already has its books and records based on most recent purchases is of no consequence.

The taxpayer would have input, by necessity, all the information required for either methodology. In *E.W. Richardson v. Commissioner*, T.C. Memo 1996-368; 1996, the Court recognized that the automobile model code item definition was more burdensome than a broader item definition. Nonetheless, the court upheld the Commissioner's imposition of the model code item definition because it clearly reflected the taxpayer's income and, since the taxpayer stipulated that it had the information necessary to implement that item definition, it was not unduly burdensome. Similarly, maintaining earliest acquisition records is not unduly burdensome. It should also be noted that the taxpayer elected the earliest acquisition method.

Although by electing the earliest acquisition method the taxpayer assumes the burden of maintaining parallel records, few taxpayers maintain books and records based on earliest acquisitions costs. Rather, as mentioned above, short-cut methods are the rule. The layer valuation index is, therefore, an estimate under either a link-chain or a double-extension methodology in almost every case.

In addition, mathematically a LIFO layer computed based on the cost of most recent purchases under the link-chain method will not necessarily equal a layer computed based on earliest acquisitions cost under the link-chain method. It is easily demonstrated that although the double-extension method may produce the same layer (at base-year cost) using either earliest acquisitions or most recent purchases costs, the link-chain method may not. In fact, it would be a rare occurrence when the layer computations under the link-chain method would be the same for both the most recent purchase methodology and a proper earliest acquisition methodology. Moreover, because the link-chain method is already subject to distortions based on changes in product mix<sup>8</sup>, it leaves little tolerance for additional distortions resulting from using a dual index.

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<sup>8</sup> One of the principal reasons for taxpayers using the link-chain method is that it eliminates the process of reconstructing base-year costs. Generally, a taxpayer's base year is the year it adopts LIFO. Since the double-extension method involves pricing items at both base-year and current-year costs, it is necessary to determine the base-year cost of all items, including new items that were not in the taxpayer's inventory in prior years. When the link-chain method is used, the annual index is obtained by comparing the cost of the items in the ending inventory to their corresponding cost in the beginning inventory. After multiplying the annual index by last year's cumulative index to obtain the new cumulative index, ending inventory at current-year cost (including new items) is divided by the cumulative index to arrive at ending inventory at base-year cost. Thus, the inflation factor of existing items in the beginning year inventory is applied to new items in determining the base year cost of new items. Therefore, if the actual inflation applicable to the new items was lower in prior years, then the resulting inventory valuation will also be lower yielding a higher value for cost of goods sold. On the other hand, if the actual inflation was higher, imputing a lower rate by using the cumulative index to derive base year costs of new items will result in a higher ending inventory valuation and a lower cost of goods sold.

Accordingly, the practical reality is that the standard of acceptability set forth in previous letter rulings and technical advice memorandums, is never (or almost never) satisfied under a dual index methodology. Therefore, instead of presenting taxpayers with an unattainable standard to satisfy, this paper concludes that the use of a dual index is simply not acceptable.

## **B. IPIC Method**

Under the Inventory Price Index Computation (IPIC) method taxpayers use external indexes published by the Bureau of Labor Statistics (BLS). Under this method a single index is also required regardless of whether or not the taxpayer determines that it has sustained an increment for the year. Section 1.472-8(e)(3)(iii)(c) requires the taxpayer to select an index most appropriate to the taxpayer's method of determining current year cost. Thus, this regulation also requires a single method of determining current-year cost for all purposes.

On January 8, 2002, the Service published new Treas. Reg. 1.472-8(e)(3), T.D. 8976, replacing former Treas. Reg. § 1.472-8(e)(3), TD. 7814 (Mar. 15, 1982) addressing use of the IPIC method. In the preamble to these new regulations the Service specifically discusses why commentators' suggestions to allow a dual index were not adopted in the final regulations. Specifically, commentators argued that without the ability to use two indexes they would be denied the right to use the earliest acquisitions method.

The Service succinctly sets forth why this concern was unfounded. Section 1.472-8(e)(3) specifically permits a taxpayer to determine its current-year cost using any method permitted under Treas. Reg. § 1.472-8(e)(2) (conventional dollar-value). Section 1.472-8(e)(2) specifically permits a taxpayer to determine current year cost by reference to earliest acquisitions. As discussed above, however, Treas. Reg. § 1.472-8(e)(2) clearly contemplates the use of a single index. Under IPIC, the taxpayer is not prevented from using the earliest acquisition cost method, provided the taxpayer actually computes the current-year cost of its inventory in the order of acquisition. However, Treas. Regs. § 1.472-8(e)(3)(iii) specifically prohibits the use of dual indexes under the IPIC method.