Inventory Method Choice and Product Market Competition

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1. Introduction

The recent movement toward allowing U.S. public companies to report using International Financial Reporting Standards (IFRS) has important implications for the use of the last-in-first-out (LIFO) inventory method, because LIFO is not an acceptable inventory cost flow assumption under IFRS, and current tax law requires firms to use the same inventory method for tax and financial reporting purposes. Adopting IFRS would appear to impose a large tax cost on U.S. firms if they are forced to switch to the first-in-first-out (FIFO) inventory cost flow method.[1] Using a model of an imperfectly competitive product market, we identify conditions under which the value of all firms in an industry is higher if all firms use FIFO than if all firms use LIFO. Therefore, ignoring any recapture of prior LIFO tax savings, the repeal of LIFO could either increase or decrease firm value.

Prior studies examining the choice between the FIFO and LIFO inventory methods have focused on the trade-off between the costs and benefit of adopting LIFO for a particular firm. Costs of adopting LIFO are a reduction in reported earnings due to the tax conformity requirement, and additional recordkeeping costs, while the benefit of LIFO adoption is the increased cash flow from tax savings. The prior studies assume that (1) rational managers will adopt LIFO when the expected benefit exceeds costs, and (2) the stock price reaction to a LIFO adoption should reflect the net benefit. However, these studies also assume that the firm's LIFO decision is made independently from the LIFO decisions of all of the firm's competitors.

[1] Requiring all firms to switch to FIFO or average cost would impose two types of tax costs. First, in the year of the switch firms would have to repay all prior year accumulated tax savings from the use of LIFO. Second, in years subsequent to the switch firms would pay higher taxes on future earnings. Our paper only addresses the second type of tax cost. Removing the first type of tax cost would require a "tax holiday" similar to the one for taxes on undistributed foreign earnings in the American Jobs Creation Act of 2004.

In this study, we extend prior research by examining how a firm's choices of output quantity and inventory method are affected by the output quantity and inventory method choices of its competitors. We find that if the firms in an industry face an inelastic demand curve, all firms in that industry would be better off if all firms use FIFO than if all firms use LIFO. This occurs because switching to LIFO decreases each firm's marginal costs, inducing an increase in output quantity and a decrease in the equilibrium price that more than offsets the tax savings associated with LIFO. We show that it is not optimal for any firm in the industry to choose LIFO if the industry is sufficiently concentrated and each firm's inventory method is publicly observable.

Kang (1993) characterizes the effect of the LIFO/FIFO inventory decision on firm value. The fact that many firms could have saved taxes by adopting LIFO, but continued to use FIFO, suggests there are costs to adopting LIFO. These costs can include increased bookkeeping costs and costs associated with the existence of contracts based on accounting variables, such as debt covenants or managerial compensation arrangements (Abdel-khalik [1985]; Bar-Yosef and Sen [1992]; Cushing and LeClere [1992]; Hunt [1985]; Healy, Kang, and Palepu [1987]; Lee and Petruzzi [1989]). Alternatively, if managers believe that investors are functionally fixated on accounting earnings, LIFO adoption would decrease stock price by decreasing reported accounting earnings (Hand [1993]). The costs related to financial reporting are driven by the conformity requirement in Internal Revenue Code §472(c), which requires firms that use LIFO for tax purposes to use it for financial reporting purposes as well.

Rather than extending these prior studies, we adopt a completely different approach to analyzing the choice of inventory accounting method. The cost of adopting

LIFO in our model arises solely from the effects it has on the equilibrium production and pricing decisions of the firms. There are no bookkeeping costs, contracting costs, or functionally fixated investors in our model. We show that, even in the absence of these considerations, firms may prefer FIFO despite the tax advantages of LIFO.

The basic economic forces in our model are similar to those examined in Katz and Rosen's [1985] model of the effect of taxes in an oligopoly setting. In their model, a tax on factor inputs raises marginal costs and thereby induces a reduction in output, which increases all firms' pretax profits. If demand is highly inelastic, so a change in price has little effect on demand, it is possible for the tax to cause all firms' after-tax profits to *increase.*

If firms use LIFO and are required to change to FIFO, LIFO repeal increases firm value if demand is inelastic. This raises the question of why any firm had adopted LIFO in the first place. An important difference between inventory choice and the tax on factor inputs examined in Katz and Rosen is that increasing one's taxes by using FIFO is voluntary, so a firm has the opportunity to do better by adopting LIFO while its competitors choose FIFO. However, the conformity requirement under §472(c) prevents a publicly-held firm from choosing LIFO secretly. We assume that if any firm in the industry switches to LIFO in one year, all other firms in the industry will switch the next year. We find that if the industry is sufficiently concentrated, every firm in the industry has an incentive to continue using FIFO as long as all other firms in the industry use FIFO. Therefore, we predict that firms that use FIFO are in concentrated industries selling products with inelastic demands.

The predictions from our model are consistent with results from our empirical tests. Using a sample of Compustat firms in 407 industries (measured using four-digit SIC codes), we estimate a cross-sectional logit model of inventory choice each year for the years 1976 through 1982. We measure industry concentration each year using the Herfindahl index, and we obtain estimates of product elasticity of substitution from Broda and Weinstein [2006] to create a proxy for each industry's price elasticity of demand. When we control for other factors expected to affect the LIFO/FIFO choice, our results show that, consistent with our predictions, the use of LIFO is negatively related to industry concentration and positively related to demand elasticity.

We emphasize that our results do not rule out competing explanations, such as contracting considerations, for why firms choose FIFO instead of LIFO. Rather, we offer them as an additional factor explaining why firms are willing to leave tax benefits on the table by using FIFO. Even though the firm pays higher taxes, after-tax returns may be higher using FIFO when the production decisions of competitors are taken into account.

Our results contribute to the "implicit tax" literature that documents a lower pretax rate of return associated with tax-favored activities. *Ceteris paribus,* firms in an industry using FIFO will have both higher pretax profits and higher taxes than firms in an industry using LIFO. Whether the tax benefits of LIFO outweigh the effects of inventory method on pretax profits depends on the price elasticity of demand, so firms in different industries will make different inventory choices.

Our model has implications for the stock price response to LIFO adoption. Prior studies have found mixed results (Lanen and Thompson [1988]; Jennings, Mest, and Thompson [1992]; Hand [1993]). In our model, LIFO adoption has countervailing

effects on firm value, reducing both future taxes and future pretax profits. If LIFO adoption reveals to the market that the more profitable equilibrium in which all firms chose FIFO has unraveled, firm value could decrease, despite the tax savings associated with LIFO.

Our model also has implications for the effects of repealing LIFO, as advocated by Kleinbard, Plesko and Goodman [2006]. Our model suggests that firms using LIFO in industries with price elasticities in excess of one will see their after-tax profits go down if LIFO is repealed. However, part of the lost tax savings from LIFO repeal will be recovered in the form of higher prices. Our model also implies that (ignoring any recapture of prior LIFO tax savings) firms using LIFO in industries with price elasticities less than one would benefit from LIFO repeal. Firms in such industries would have been better off if all such firms had chosen FIFO, but would have chosen LIFO if the industry is too dispersed to sustain the equilibrium in which all firms choose FIFO.

Finally, our model highlights a rare instance in which a firm's financial reporting decision can change the firm's real production decisions through LIFO's effect on the marginal cost of production. Our paper combines ideas from two areas of accounting research—financial reporting and managerial accounting—and highlights how both can play a role in the firm's optimal inventory accounting method decision.

We present our model and characterize the equilibrium in section 2. In section 3 we test the empirical implications of our model. Section 4 concludes.

2. Model

2.1 FIRM PRODUCTION DECISIONS

$N \geq 2$ identical publicly-traded firms comprise an industry. Each firm i makes q_i units of the product on each date j at a cost of $c(1+\pi)^j$ per unit, where π is the rate of inflation. The firm holds q_i units of inventory between the date units are produced and the date units are sold. The firm sells q_i units on each date; the units sold on date $j+1$ were produced on date j and held in inventory between the two dates.

From the perspective of the market as a whole, the selling price p on date $j+1$ is

$$p(Q) = \frac{d(1+\pi)^{j+1}}{Q^{1/\varepsilon}}, \tag{1}$$

where $d > 0$ is a demand parameter, Q is the aggregate quantity produced by the industry on date j, and $\varepsilon > \frac{1}{N}$ is the product's own price elasticity of demand. The lower bound on ε ensures that equilibrium quantities are positive. Expressing quantity as a function of price yields

$$Q(p) = \left[\frac{d(1+\pi)^{j+1}}{p}\right]^{\varepsilon}. \tag{2}$$

The price elasticity of demand is

$$-\frac{\partial Q}{\partial p}\frac{p}{Q} = \varepsilon. \tag{3}$$

As is normally done in economic models, we express the price elasticity of demand as a positive number by multiplying $\frac{\partial Q}{\partial p}\frac{p}{Q}$ by negative one. Demand elasticities are almost

always negative because $\frac{\partial Q}{\partial p} < 0$ in nearly all cases. If $\varepsilon > 1$, the demand for the product is elastic; if $\varepsilon < 1$, the demand for the product is inelastic.

From the perspective of firm *i*, the selling price on date *j+1* is

$$p(q_i) = \frac{d(1+\pi)^{j+1}}{\left[q_i + (N-1)\overline{q}\right]^{1/\varepsilon}}, \tag{4}$$

where $\overline{q}$ is the Cournot conjecture that firm *i* makes regarding its competitors' current production decisions. The nominal discount rate is $r > \pi$.

Each firm pays tax on the date inventory is sold at a rate τ on its taxable income earned on that date, which is sales revenue less cost of goods sold. The firm holds q_i units of inventory between the date units are produced and the date units are sold. If firm *i* uses the FIFO inventory method, its deduction for cost of goods sold on date *j+1* is $c(1+\pi)^j$; if firm *i* uses the LIFO inventory method, its deduction for cost of goods sold on date *j+1* is $c(1+\pi)^{j+1}$.

Each firm chooses its production quantity in a non-cooperative fashion, maximizing its own after-tax profit. As all *N* firms are identical, it is natural to consider the case in which all firms use the same inventory method. We first characterize firm payoffs in (1) the case in which all firms use LIFO and (2) the case in which all firms use FIFO. If all firms use LIFO, firm *i* chooses q_i on date *j* to solve

$$\max_{q_i}\left\{q_i\left[\frac{p(q_i)(1-\tau)}{1+r} - c(1+\pi)^j + \frac{\tau c(1+\pi)^{j+1}}{1+r}\right]\right\}. \tag{5}$$

If all firms use FIFO, firm *i* chooses q_i on date *j* to solve

$$\max_{q_i}\left\{ q_i\left[\frac{p(q_i)(1-\tau)}{1+r} - c(1+\pi)^j + \frac{\tau c(1+\pi)^j}{1+r}\right]\right\}. \quad (6)$$

The only difference between (5) and (6) is the amount of tax savings associated with the deduction for cost of goods sold. Solving for the equilibrium quantities and comparing the after-tax profits under FIFO and LIFO yields the relation between inventory method choice and after-tax profits, which we characterize in Proposition 1.

PROPOSITION 1: Firm after-tax profits are greater under LIFO than under FIFO if $\varepsilon > 1$, (i.e., demand is elastic), are greater under FIFO than under LIFO if $\varepsilon < 1$, (i.e., demand is inelastic), and are identical under either method if $\varepsilon = 1$.

All proofs are in Appendix A.

To see the intuition behind this result, note that the firms in the industry overproduce relative to a setting in which they formed a cartel and jointly chose output quantities that maximized industry-wide profits. Under LIFO, the firms benefit from lower taxes. However, LIFO reduces the after-tax cost of production, which induces higher output. Higher output moves each firm further away from the production decisions that maximize industry-wide profits. Using FIFO is beneficial if price is very sensitive to changes in output, because then the increase in pretax income more than offsets the higher tax burden.

For example, let $j = 0$, $d = 1{,}000$, $\tau = 35\%$, $r = 7\%$, $\pi = 4\%$, $c = 1$, $N = 2$, and $\varepsilon = 0.8$. If both firms use LIFO, then each firm chooses $q = 55.35$, the market price is 2.90, and the after-tax profit for each firm is 60.87. If both firms use FIFO, then each firm chooses $q = 54.48$, the market price is 2.95, and the after-tax profit for each firm is 61.11. Because each firm faces a higher after-tax marginal cost under FIFO than under LIFO,

each reduces output, which in turn increases the market price of the good. Because the price elasticity of demand is less than one, the gain in pretax profits more than offsets the increased taxes each firm pays by adopting FIFO.

When the price elasticity is greater than one, the gain in pretax profits is less than the increased taxes each firm would pay by adopting LIFO. For example, if all of the facts in the above example remain the same, except that $\varepsilon = 1.2$, the after-tax profit for each firm is 466.4 if each firm uses LIFO and 464.5 if each firm uses FIFO. When the price elasticity is equal to one, the two effects exactly offset each other, yielding after-tax profits of 157.9 under both LIFO and FIFO.

2.2 INDUSTRY EQUILIBRIUM

The analysis in the preceding section shows the inventory method that maximizes industry-wide after-tax profits. In this section, we consider which inventory method that firms would choose if both FIFO and LIFO are permitted. Although industry-wide after-tax profits are maximized if all firms choose FIFO when $\varepsilon < 1$, there is no assurance that firms would choose FIFO. In a single-period game, any one firm would be better off choosing LIFO if its competitors chose FIFO. Every firm in the industry benefits from the price increase associated with FIFO, whereas the firm electing FIFO instead of LIFO bears the entire tax cost of doing so. It is always an equilibrium for every firm to choose LIFO, regardless of the value of ε. The question we consider in this section is whether there is also an equilibrium in which all firms choose FIFO.

When $\varepsilon < 1$, the choice of inventory method results in a Prisoner's Dilemma in that every firm has an incentive to choose LIFO, although all firms would be better off if all firms chose FIFO than if all firms chose LIFO. The repeated nature of the interaction

and the public revelation of a firm's inventory method due to the conformity requirement in §472(c) creates the possibility of another equilibrium. In this equilibrium, each firm chooses FIFO on date one and continues to choose FIFO as long as all of its competitors choose FIFO. If in any period any firm chooses LIFO, all competitors choose LIFO in the next period and all future periods.

An equilibrium in which each firm chooses FIFO can be sustained as long as the gain from staying in the FIFO equilibrium exceeds the tax savings from switching to LIFO. On each date, each firm sells its existing inventory, discloses the inventory method associated with the sales on that date, then chooses its production quantity. Suppose that in all dates up to date *T*, every firm has chosen FIFO and the quantity that solves (6). If each firm is better off on date T continuing to choose FIFO instead of switching to LIFO, then an equilibrium in which each firm chooses FIFO is sustainable. If instead the tax benefit on date T from switching to LIFO exceeds the cost of switching to LIFO, every firm will switch to LIFO and so the FIFO equilibrium is not sustainable. We characterize the conditions under which it is an equilibrium for each firm to choose FIFO in Proposition 2.

PROPOSITION 2: An equilibrium in which each firm chooses FIFO is sustainable if and only if

$$N < \frac{1}{\varepsilon}\left[1+\frac{(1+\pi)(1+r-\tau)}{\tau\pi(r-\pi)}\left\{1-\left[\frac{1+r-\tau}{1+r-\tau-\tau\pi}\right]^{\varepsilon-1}\right\}\right]. \tag{7}$$

If $\varepsilon \geq 1$, the term in square brackets on the right-hand side of (7) is less than one, and thus the inequality is never satisfied because $\varepsilon > \frac{1}{N}$. This occurs because $\varepsilon \geq 1$

implies $V_i^L \geq V_i^F$. When ε < 1, the inequality in (7) is satisfied when *N* is sufficiently small. For example, let ε = 0.85, τ = 35%, r = 7%, and π = 4%. Then the right-hand side of (7) is approximately 7.35, so an equilibrium in which all firms choose FIFO is sustainable as long as there are seven or fewer firms in the industry. When the industry is sufficiently concentrated, the gains from staying with the FIFO equilibrium are larger than the tax savings from switching to LIFO, which makes the FIFO equilibrium sustainable. When the industry is sufficiently dispersed, the FIFO equilibrium cannot be sustained.

Differentiating the right-hand side of (7) shows that the critical value of *N* is decreasing in ε, so it easier to sustain the FIFO equilibrium when the price elasticity of the good is more inelastic, i.e., is closer to zero. In summary, we expect firms in an industry to choose the same inventory methods. We expect firms to choose LIFO unless (a) the price elasticity of demand is less than one and (b) the industry is concentrated.

2.3 EFFECTS OF LIFO ADOPTION

The preceding analysis shows that the effect on firm value from LIFO adoption is less than the present value of tax savings computed under an assumption that output quantities do not change. Adopting LIFO reduces the after-tax marginal cost of production, which induces greater output and reduces the sales price. Firm value could even decrease in the period that LIFO is adopted. If $\varepsilon < 1$, the value of every firm is higher if every firm adopts FIFO than if every firm adopts LIFO. However, any one firm can gain a transitory advantage by switching to LIFO. Late adopters of LIFO do so when $\varepsilon < 1$ only when the old equilibrium falls apart. Adoption of LIFO reveals to the market

that the preferred equilibrium can no longer be sustained, and so firm value drops in the period of LIFO adoption.

2.4 CONSEQUENCES OF LIFO REPEAL

Propositions 1 and 2 imply that repealing LIFO could have some unexpected consequences. Proposition 1 implies that firms in industries with elastic demand functions ($\varepsilon > 1$) benefit from LIFO, and thus repealing LIFO would make these firms worse off. Note that even for these firms, the lower the price elasticity of demand, the less harmful the repeal of LIFO would be, because firms will respond to LIFO repeal by reducing output, thereby increasing price and pretax profits.

Proposition 2 implies that firms in industries with inelastic demand functions ($\varepsilon < 1$) that choose LIFO do so because the industry is too dispersed to sustain the equilibrium in which all firms choose FIFO. Therefore, ignoring the recapture of prior LIFO tax savings that would occur absent a "tax holiday," some firms would actually benefit from LIFO repeal, as the increase in pretax profits would more than offset the increased tax cost of using the FIFO inventory method.

3. Empirical tests

To test our hypotheses, we start with a sample of all Compustat firms with nonzero data for total assets (DATA6), sales (DATA12), inventory (DATA3), and inventory method (DATA59). Inventory method in Compustat is a numerical code containing from 1 to 4 digits, where each digit represents an inventory accounting method (1 = FIFO; 2 = LIFO; 3 = specific identification; 4 = average cost; etc.). The Compustat manual states that "if reported by the company, the methods are listed in order of relative amounts of inventory valued by each method." Based on this, we consider a firm to be a

LIFO firm if the first digit of the Compustat inventory code is "2", and a non-LIFO firm if the first digit is any other number.

To maximize the power of our empirical tests, we focus on a time period during which the choice of LIFO was very important. To determine this, we computed the percentage of Compustat firms that changed to or changed from the LIFO inventory method (based on the first digit of the industry method code) during the period 1971 through 1997, as well as the percentage change in the consumer price index during that period. These data are presented in a chart in Figure 1.

[INSERT FIGURE 1 HERE]

As Figure 1 demonstrates, there was a large spike in LIFO adoptions in 1974, and another smaller spike in 1979-80; these spikes correspond to relatively high inflation during those years. Because the predictions from our model are based on a steady-state use of an inventory method, and are not designed to predict switches in inventory methods,[2] we focus our empirical tests on the period beginning in 1976 (two years after the initial LIFO adoption spike) and ending in 1982 (two years after the later LIFO adoption spike). We expect that inventory method was an extremely important consideration for managers during this time period. For 1976, our sample consists of 4,492 firms in 407 industries. Table B1 in Appendix B lists all of our sample industries for 1976 and shows the number of firms in each industry, broken down by LIFO and non-LIFO usage. Table B1 also shows the percentage of each industry using LIFO. As the summary statistics at the bottom of the table show, LIFO use varies between 0% and 100% of the firms in the industry, with a mean (median) of 18% (10%).

[2] Putting this idea another way, our model is a "levels" model rather than a "changes" model.

We measure an industry's concentration using the Herfindahl index, equal to the sum of the squared shares of all firms in an industry, where a firm's share is equal to the firm's sales divided by the total sales for the industry. The Herfindahl index ranges from 1/n to 1, where n is the number of firms in the industry. Our definition of an industry is based on Compustat's four-digit SIC codes. Table B1 in Appendix B shows the concentration of each sample industry for 1976.

One of the predictions in our model is that LIFO usage will be related to an industry's price elasticity of demand. It is difficult to obtain empirical proxies for industry demand elasticity. We were able to locate industry elasticity of substitution estimates related to imported products for a number of industries on Christian Broda's website, which is based on based on the analysis in Broda and Weinstein (2006).[3] We use the elasticity of substitution as a proxy for the price elasticity of demand; the two elasticities are equal in theory when the demand function is derived from a constant elasticity of substitution (CES) utility function and the number of products available to the consumer is large (Feenstra 2004, 143.)

All of the elasticity estimates are greater than one because the CES utility function assumes that the elasticity of substitution is greater than one; therefore, the CES model is mis-specified for goods with own price elasticities that are less than one. However, in the absence of actual direct estimates of industry elasticities, the Broda and Weinstein elasticity of substitution estimates should be a reasonable proxy for the parameter of interest, the price elasticity of demand. These elasticities cover the time period 1972-1988, and therefore correspond well to our sample period. However, they are

[3] http://faculty.chicagogsb.edu/christian.broda/website/research/unrestricted/TradeElasticities/TradeElasticities.html

grouped by SITC (Standard International Trade Classification) code rather than SIC code.[4]. In those cases where more than one SITC corresponds with an SIC code, we averaged the elasticities for the SITCs to obtain the elasticity estimate for the corresponding SIC code. This results in elasticity estimates for 203 four-digit SIC codes.

Only 58 of our 407 sample industries match up with these 203 industries in the elasticity database. To increase the number of industries for which we can use elasticity estimates, we measure elasticity at the two-digit SIC code level by averaging the elasticity estimates for all industries with the same two-digit SIC code. This procedure using two-digit SIC codes allows us to include elasticity estimates for 176 of our 407 industries, which (for 1976) comprise 2,320 of the 4,492 sample firms. Appendix B lists the elasticity estimates for our sample industries.

Table 1 provides some descriptive statistics about our sample. Since we do not pool all of the years in our sample period, but estimate our regression model separately for each year, Table 1 reports descriptive statistics for 1976, the first year in our sample period. The table contains two parts. Panel A shows descriptive statistics for the full sample of firms (including those for which we do not have elasticity estimates), while Panel B shows descriptive statistics for the smaller sample from industries for which we have elasticity estimates. Consistent with our predictions, LIFO firms have lower concentration and higher elasticity than non-LIFO firms. We test these differences, while controlling for the other factors that differ across LIFO and non-LIFO firms, in our logit regressions below.

INSERT TABLE 1

[4] To convert the SITC classifications to our SIC industries, we rely on the concordance at http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/TradeConcordances.html

A correlation matrix showing the correlation coefficients among all of our variables for 1976 is shown in Table 2. As shown in Table 1, LIFO use is negatively correlated with industry concentration and positively correlated with elasticity.

INSERT TABLE 2

To formally test the predictions from our model, and to control for other factors that are associated with LIFO use, we use logit to estimate the following cross-sectional model each year from 1976 through 1982:

$$INV = \alpha + \beta_1 CONC + \beta_2 ELAST + \beta_3 CONTROLS + \varepsilon \qquad (15)$$

where INV is equal to 1 if the first digit of the firm's Compustat inventory method code is a "2" (indicating LIFO use) and 0 otherwise; CONC is the Herfindahl index for the firm's industry (four-digit SIC code) and ELAST is the log of the elasticity estimate for the firm's industry (two-digit SIC code). CONTROLS are those variables that are expected to differ between LIFO and non-LIFO firms. We include the following control variables in our model: SIZE (the log of sales); PCTINV (the percentage of a firm's assets represented by inventory); LEVER (the firm's financial leverage); and INVTO (the inventory turnover ratio). The results of estimating this model are presented in Tables 3 and 4.

INSERT TABLES 3 and 4

Tables 3 and 4 report coefficient estimates and standard errors from estimating equation (15) for each year from 1976 through 1982. The results are consistent across the years in the sample period. Table 3 reports results excluding ELAST from the model, which increases the sample size (because we do not have elasticity estimates for most of our industries), while Table 4 reports results including ELAST in the model.

Consistent with the predictions of our model, LIFO use is negatively related to industry concentration each year, although the coefficient is only significant at the 0.10 level (two-tailed test) in 1982. For Table 4, with a smaller sample of industries for which there are elasticity estimates, the coefficient on CONC is negative and significant each year although it is only significant at the 0.10 level (two-tailed test) in 1981. Also consistent with our predictions, LIFO use is positively related to an industry's elasticity each year.

3.1 ROBUSTNESS TESTS

We conduct several additional tests of the robustness of our Table 3 and 4 results. First, as is clear from Appendix B, several of our industries have only a single firm, resulting in a Herfindahl Index of 1. In many cases this single firm is a non-LIFO firm, which could be causing the negative relation between industry concentration and LIFO use. To investigate this possibility, we re-estimate equation (15) after eliminating all industries with a single firm. The results (not reported) are essentially unchanged from those in Tables 3 and 4.

We also note that our sample includes industries in SIC codes 6000-6999, which are financial services. Our sample includes all Compustat firms that report nonzero amounts for inventory and inventory accounting method, regardless of the industry in which the firm is located. However, it is not clear why financial services firms would report inventory. To investigate the impact of these industries on our results, we re-estimate equation (15) after eliminating all observations with SIC codes between 6000 and 6999. The results (not reported) are essentially unchanged from those in Tables 3 and 4. In addition, as Appendix B makes clear, our Table 4 results exclude all industries with

SIC codes greater than 4000, so our results are not being driven by industries for which inventories may be unimportant.

Our estimation of equation (15) is a test of industry method choice at the firm level, allowing us to control for firm size, which is highly correlated with LIFO use (i.e., LIFO users tend to be large firms). However, all our sample firms in the same industry have the same Herfindahl index for a year, and therefore our measure of concentration does not vary within an industry. To investigate whether our results are affected by our firm-level analysis (as opposed to an industry-level analysis), for each of our industries we compute the percentage of firms in that industry that use LIFO. We then compute the correlation coefficient between percentage of firms using LIFO and the Herfindahl indexes of our sample industries for each year from 1976 through 1982. Untabulated results show that the correlation is negative each year, ranges from a high of –0.143 in 1981 to a low of –0.225 in 1976, and are all significantly different from zero with p-values of 0.004 or less. Therefore, our Table 3 and 4 results do not appear to be due to our use of firm-level rather than industry-level analysis.

4. Conclusions

Our examination of inventory method choice shows that if all firms in an industry use FIFO, they receive higher pretax profits than they would have if all firms in an industry use LIFO. If the price elasticity of demand is less than one, then the increase in pretax profits exceeds the tax savings associated with LIFO.

The conformity requirement in §472(c) provides a way of verifying that one's competitors are choosing FIFO. If each firm believes that switching to LIFO this period

will induce all competitors to switch to LIFO next period, then the equilibrium in which all firms choose FIFO can be sustained if the number of competitors is sufficiently small.

We predict that firms facing elastic demand functions and firms in industries with low concentrations are more likely to choose LIFO than other firms. Our study of firm behavior following the high level of LIFO adoptions in 1974 and 1975 is consistent with the model.

Our findings have important policy implications regarding the debate over the repeal of LIFO, which has taken on new significance since IFRS does not allow LIFO use. The tax effects of LIFO repeal are mitigated by the increase in pretax profits associated with the equilibrium in which all firms choose FIFO. In fact, ignoring the possible recapture of prior LIFO tax savings, it is possible for firms to benefit from LIFO repeal; firms in a dispersed industry facing an inelastic demand curve choose LIFO, but would all be better off if all firms in the industry used FIFO.

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Appendix A

PROOF OF PROPOSITION 1:

Differentiating (5) yields a first-order condition for each firm. As each firm faces the same decision problem, we substitute $q_i = \overline{q}$ into the first-order condition to find the equilibrium production decisions and the present value of after-tax cash flows associated with that production decision for firm *i* on date *j* if all firms choose LIFO $\left(\Pi_i^L\right)$. The second-order condition is satisfied because $\varepsilon > \frac{1}{N}$.

$$q_i^* = \left[\frac{d(\varepsilon N - 1)(1-\tau)(1+\pi)}{\varepsilon c N^{(1+\varepsilon)/\varepsilon}(1+r-\tau-\tau\pi)}\right]^{\varepsilon} \tag{A1}$$

$$\Pi_i^L = \left[\frac{(1+\pi)^{j+1}}{\varepsilon N(1+r)}\right]\left[\frac{d(1-\tau)}{N}\right]^{\varepsilon}\left[\frac{(\varepsilon N-1)(1+\pi)}{\varepsilon c(1+r-\tau-\tau\pi)}\right]^{\varepsilon-1} \tag{A2}$$

Differentiating (6) and substituting $q_i = \overline{q}$ into the first-order condition yields the equilibrium production decisions and the present value of after-tax cash flows associated with that production decision for firm *i* on date *j* if all firms choose FIFO $\left(\Pi_i^F\right)$.

$$q_i^* = \left[\frac{d(\varepsilon N - 1)(1-\tau)(1+\pi)}{\varepsilon c N^{(1+\varepsilon)/\varepsilon}(1+r-\tau)}\right]^{\varepsilon} \tag{A3}$$

$$\Pi_i^F = \left[\frac{(1+\pi)^j}{\varepsilon N(1+r)}\right]\left[\frac{d(1-\tau)}{N}\right]^{\varepsilon}\left[\frac{(\varepsilon N-1)(1+\pi)}{\varepsilon c(1+r-\tau)}\right]^{\varepsilon-1} \tag{A4}$$

Comparing (A2) and (A4) yields the result. QED

PROOF OF PROPOSITION 2:

Using (A4), the value V_i^F of firm *i* on date *T* if all firms continue to choose FIFO in the future is

$$\begin{aligned} V_i^F &= \sum_{j=T}^{\infty}\left[\frac{(1+\pi)^{j+1}}{\varepsilon N(1+r)^{j+1-T}}\right]\left[\frac{d(1-\tau)}{N}\right]^{\varepsilon}\left[\frac{(\varepsilon N-1)(1+\pi)}{\varepsilon c(1+r-\tau)}\right]^{\varepsilon-1} \\ &= \left[\frac{(1+\pi)^{T+1}}{\varepsilon N(r-\pi)}\right]\left[\frac{d(1-\tau)}{N}\right]^{\varepsilon}\left[\frac{(\varepsilon N-1)(1+\pi)}{\varepsilon c(1+r-\tau)}\right]^{\varepsilon-1}. \end{aligned} \tag{A5}$$

Using (A2), the value V_i^L of firm *i* on date *T* if all firms choose LIFO in the future is

$$\begin{aligned} V_i^L &= \sum_{j=T}^{\infty}\left[\frac{(1+\pi)^{j+1}}{\varepsilon N(1+r)^{j+1-T}}\right]\left[\frac{d(1-\tau)}{N}\right]^{\varepsilon}\left[\frac{(\varepsilon N-1)(1+\pi)}{\varepsilon c(1+r-\tau-\tau\pi)}\right]^{\varepsilon-1} \\ &= \left[\frac{(1+\pi)^{T+1}}{\varepsilon N(r-\pi)}\right]\left[\frac{d(1-\tau)}{N}\right]^{\varepsilon}\left[\frac{(\varepsilon N-1)(1+\pi)}{\varepsilon c(1+r-\tau-\tau\pi)}\right]^{\varepsilon-1}. \end{aligned} \tag{A6}$$

In addition, firm *i* saves taxes on date *T* by adopting LIFO in an amount equal to

$$\tau c(1+\pi)^{T} q_i^* - \tau c(1+\pi)^{T-1} q_i^* = \tau c(1+\pi)^{T-1} q_i^* \pi, \tag{A7}$$

where q_i^* is as shown in (A3). Firm *i* should adopt LIFO if (A7) exceeds $V_i^F - V_i^L$.

Using (A5)-(A7) and simplifying shows that firm *i* should adopt FIFO when all other firms in the industry adopt FIFO if and only if

$$N < \frac{1}{\varepsilon}\left[1+\frac{(1+\pi)(1+r-\tau)}{\tau\pi(r-\pi)}\left\{1-\left[\frac{1+r-\tau}{1+r-\tau-\tau\pi}\right]^{\varepsilon-1}\right\}\right].$$

QED

Appendix B

Table B1
Sample firm industry composition

Industry Name	SIC	Concentration	Number of firms LIFO	Non-LIFO	% LIFO	Elasticity
AGRICULTURE PRODUCTION-CROPS	100	0.360	1	12	7.69%	na
AGRIC PROD-LVSTK,ANIMAL SPEC	200	0.529	0	7	0.00%	na
AGRICULTURAL SERVICES	700	0.646	0	3	0.00%	na
FORESTRY	800	0.909	0	2	0.00%	na
METAL MINING	1000	0.175	2	13	13.33%	na
GOLD AND SILVER ORES	1040	0.307	1	14	6.67%	na
SILVER ORES	1044	1.000	0	1	0.00%	na
MISCELLANEOUS METAL ORES	1090	1.000	0	1	0.00%	na
BITUMINOUS COAL, LIGNITE MNG	1220	0.193	2	8	20.00%	na
BITMNS COAL,LIGNITE SURF MNG	1221	0.363	0	5	0.00%	na
CRUDE PETROLEUM & NATURAL GS	1311	0.148	10	79	11.24%	na
DRILLING OIL AND GAS WELLS	1381	0.152	1	11	8.33%	na
OIL AND GAS FIELD EXPL SVCS	1382	0.961	1	3	25.00%	na
OIL, GAS FIELD SERVICES, NEC	1389	0.534	2	7	22.22%	na
MNG, QUARRY NONMTL MINERALS	1400	0.261	3	10	23.08%	na
GEN BLDG CONTRACTOR-RESIDNTL	1520	0.869	1	3	25.00%	na
OPERATIVE BUILDERS	1531	0.178	1	14	6.67%	na
GEN BLDG CONTRACTORS-NONRES	1540	0.681	0	3	0.00%	na
HEAVY CONSTR-NOT BLDG CONSTR	1600	0.216	1	11	8.33%	na
WATER,SEWER,PIPE LINE CONSTR	1623	0.597	0	3	0.00%	na
CONSTRUCTION-SPECIAL TRADE	1700	0.196	0	8	0.00%	na
ELECTRICAL WORK	1731	0.292	0	4	0.00%	na
FOOD AND KINDRED PRODUCTS	2000	0.112	0	18	0.00%	na
MEAT PACKING PLANTS	2011	0.103	2	19	9.52%	na
SAUSAGE,OTH PREPARED MEAT PD	2013	0.769	0	12	0.00%	na
POULTRY SLAUGHTER & PROCESS	2015	0.469	0	4	0.00%	na
DAIRY PRODUCTS	2020	0.762	0	6	0.00%	na
ICE CREAM & FROZEN DESSERTS	2024	1.000	0	1	0.00%	na
CAN,FROZNPRESRV FRUIT & VEG	2030	0.154	3	17	15.00%	na
CAN FRUIT,VEG,PRESRV,JAM,JEL	2033	0.240	3	2	60.00%	na
GRAIN MILL PRODUCTS	2040	0.159	3	15	16.67%	na
BAKERY PRODUCTS	2050	0.224	1	7	12.50%	na
COOKIES AND CRACKERS	2052	0.928	1	2	33.33%	na
SUGAR & CONFECTIONERY PRODS	2060	0.106	8	13	38.10%	na
FATS AND OILS	2070	0.433	0	5	0.00%	na
BEVERAGES	2080	0.275	3	8	27.27%	na
MALT BEVERAGES	2082	0.172	3	7	30.00%	na
WINE,BRANDY & BRANDY SPIRITS	2084	1.000	0	1	0.00%	na
DISTILLED AND BLENDED LIQUOR	2085	1.000	1	0	100.00%	na
BTLD & CAN SOFT DRINKS,WATER	2086	0.186	10	10	50.00%	na
MISC FOOD PREPS, KINDRED PDS	2090	0.193	5	6	45.45%	na
PREP FRESH,FROZN FISH, SEAFD	2092	1.000	0	1	0.00%	na

Table B1 (continued)

Industry Name	SIC	Concentration	Number of firms LIFO	Non-LIFO	% LIFO	Elasticity
TOBACCO PRODUCTS	2100	0.394	0	4	0.00%	na
CIGARETTES	2111	0.261	1	4	20.00%	na
TEXTILE MILL PRODUCTS	2200	0.316	5	28	15.15%	4.826
BRDWOVEN FABRIC MILL, COTTON	2211	0.111	7	10	41.18%	4.826
BRDWOVN FABRIC MAN MADE,SILK	2221	0.300	1	5	16.67%	4.826
KNITTING MILLS	2250	0.461	1	16	5.88%	4.826
KNIT OUTERWEAR MILLS	2253	0.169	2	6	25.00%	4.826
CARPETS AND RUGS	2273	0.284	5	6	45.45%	4.826
APPAREL & OTHER FINISHED PDS	2300	0.072	2	56	3.45%	3.409
MEN,YTH,BOYS FRNSH,WRK CLTHG	2320	0.209	3	13	18.75%	3.409
WOMENS,MISSES,JRS OUTERWEAR	2330	0.145	0	21	0.00%	3.409
WMNS,MISS,CHLD,INFNT UNDGRMT	2340	0.211	0	6	0.00%	3.409
MISC FABRICATED TEXTILE PDS	2390	0.487	2	10	16.67%	3.409
LUMBER AND WOOD PDS, EX FURN	2400	0.257	5	9	35.71%	1.155
SAWMILLS, PLANING MILLS, GEN	2421	0.256	2	4	33.33%	1.155
MILLWORK,VENEER,PLYWOOD	2430	0.182	4	14	22.22%	1.155
MOBILE HOMES	2451	0.180	2	15	11.76%	1.155
PREFAB WOOD BLDGS & COMPONTS	2452	0.148	2	9	18.18%	1.155
HOUSEHOLD FURNITURE	2510	0.210	6	21	22.22%	0.948
WOOD HSHLD FURN, EX UPHOLSRD	2511	0.555	1	4	20.00%	0.948
OFFICE FURNITURE	2520	0.198	2	7	22.22%	0.948
OFFICE FURNITURE, EX WOOD	2522	0.213	2	4	33.33%	0.948
PUBLIC BLDG & REL FURNITURE	2531	0.355	3	1	75.00%	0.948
PARTITIONS,SHELVING,LOCKERS	2540	0.537	4	1	80.00%	0.948
MISC FURNITURE AND FIXTURES	2590	0.775	0	2	0.00%	0.948
PAPER AND ALLIED PRODUCTS	2600	0.271	6	4	60.00%	na
PULP MILLS	2611	0.782	0	2	0.00%	na
PAPER MILLS	2621	0.087	13	11	54.17%	na
PAPERBOARD MILLS	2631	0.246	4	3	57.14%	na
PAPERBOARD CONTAINERS, BOXES	2650	0.122	10	5	66.67%	na
CONVRT PAPR,PAPRBRD,EX BOXES	2670	0.307	9	16	36.00%	na
PLASTIC,FOIL,COATD PAPR BAGS	2673	0.829	1	3	25.00%	na
NEWSPAPER:PUBG, PUBG & PRINT	2711	0.134	3	12	20.00%	na
PERIODICAL:PUBG,PUBG & PRINT	2721	0.197	1	10	9.09%	na
BOOKS: PUBG, PUBG & PRINTING	2731	0.087	6	23	20.69%	na
BOOK PRINTING	2732	0.837	1	1	50.00%	na
MISCELLANEOUS PUBLISHING	2741	0.415	0	4	0.00%	na
COMMERCIAL PRINTING	2750	0.090	4	36	10.00%	na
MANIFOLD BUSINESS FORMS	2761	0.350	9	5	64.29%	na
GREETING CARDS	2771	0.922	1	1	50.00%	na
BLANKBOOKS,BINDERS,BOOKBIND	2780	0.586	1	5	16.67%	na
SERVICE INDS FOR PRINT TRADE	2790	0.418	0	3	0.00%	na
CHEMICALS & ALLIED PRODS	2800	0.342	3	3	50.00%	1.042
INDL INORGANIC CHEMICALS	2810	0.252	8	9	47.06%	1.042
PLASTIC MATL,SYNTHETIC RESIN	2820	0.537	5	4	55.56%	1.042

Table B1 (continued)

Industry Name	SIC	Concentration	Number of firms			Elasticity
			LIFO	Non-LIFO	% LIFO	
PLASTICS,RESINS,ELASTOMERS	2821	0.413	4	5	44.44%	1.042
MEDICINAL CHEMS,BOTANICL PDS	2833	0.534	1	1	50.00%	1.042
PHARMACEUTICAL PREPARATIONS	2834	0.076	8	44	15.38%	1.042
IN VITRO,IN VIVO DIAGNOSTICS	2835	0.441	0	9	0.00%	1.042
BIOLOGICAL PDS,EX DIAGNSTICS	2836	0.615	0	5	0.00%	1.042
SOAP,DETERGENT,TOILET PREPS	2840	0.742	3	4	42.86%	1.042
SPECIAL CLEAN,POLISH PREPS	2842	0.312	1	8	11.11%	1.042
PERFUME,COSMETIC,TOILET PREP	2844	0.212	2	25	7.41%	1.042
PAINTS, VARNISHES, LACQUERS	2851	0.258	6	8	42.86%	1.042
INDUSTRIAL ORGANIC CHEMICALS	2860	0.315	5	6	45.45%	1.042
AGRICULTURE CHEMICALS	2870	0.404	2	8	20.00%	1.042
MISC CHEMICAL PRODUCTS	2890	0.138	10	18	35.71%	1.042
ADHESIVES AND SEALANTS	2891	0.420	1	3	25.00%	1.042
PETROLEUM REFINING	2911	0.077	30	14	68.18%	na
ASPHALT PAVING,ROOFING MATLS	2950	0.336	1	5	16.67%	na
MISC PDS OF PETROLEUM & COAL	2990	0.810	1	1	50.00%	na
TIRES AND INNER TUBES	3011	0.254	6	5	54.55%	6.875
RUBBER AND PLASTICS FOOTWEAR	3021	0.528	0	2	0.00%	6.875
GSKETS,HOSE,BLTNG-RUBR,PLSTC	3050	0.373	3	5	37.50%	6.875
FABRICATED RUBBER PDS, NEC	3060	0.136	12	4	75.00%	6.875
MISC PLASTICS PRODUCTS	3080	0.138	6	18	25.00%	6.875
UNSUPP PLASTICS FILM & SHEET	3081	0.163	2	9	18.18%	6.875
PLASTICS FOAM PRODUCTS	3086	0.862	1	3	25.00%	6.875
PLASTICS PRODUCTS, NEC	3089	0.178	12	32	27.27%	6.875
LEATHER AND LEATHER PRODUCTS	3100	0.267	1	5	16.67%	12.431
FOOTWEAR, EXCEPT RUBBER	3140	0.257	5	15	25.00%	12.431
FLAT GLASS	3211	0.571	0	2	0.00%	1.122
GLASS,GLASSWR-PRESSED,BLOWN	3220	1.000	1	0	100.00%	1.122
GLASS CONTAINERS	3221	0.695	2	2	50.00%	1.122
GLASS PD,MADE OF PURCH GLASS	3231	0.254	1	4	20.00%	1.122
CEMENT, HYDRAULIC	3241	0.099	9	13	40.91%	1.122
STRUCTURAL CLAY PRODUCTS	3250	0.167	2	10	16.67%	1.122
POTTERY AND RELATED PRODUCTS	3260	0.480	0	4	0.00%	1.122
CONCRETE, GYPSUM AND PLASTER	3270	0.235	2	12	14.29%	1.122
CONCRETE PDS, EX BLOCK,BRICK	3272	0.282	0	4	0.00%	1.122
ABRASIVE,ASBESTOS,MISC MINRL	3290	0.173	6	12	33.33%	1.122
BLAST FURNACES & STEEL WORKS	3310	0.573	4	3	57.14%	9.911
STEEL WORKS & BLAST FURNACES	3312	0.105	23	13	63.89%	9.911
STEEL PIPE AND TUBES	3317	0.257	6	2	75.00%	9.911
IRON AND STEEL FOUNDRIES	3320	0.183	5	8	38.46%	9.911
PRIM SMELT,REFIN NONFER METL	3330	0.213	3	8	27.27%	9.911
PRIM PRODUCTION OF ALUMINUM	3334	0.261	3	1	75.00%	9.911
SEC SMELT,REFIN NONFER METAL	3341	0.354	2	2	50.00%	9.911
ROLLING & DRAW NONFER METAL	3350	0.200	7	12	36.84%	9.911
DRAWNG,INSULATNG NONFER WIRE	3357	0.337	3	4	42.86%	9.911

Table B1 (continued)

Industry Name	SIC	Concentration	Number of firms LIFO	Non-LIFO	% LIFO	Elasticity
NONFER FOUNDRIES(CASTINGS)	3360	1.000	0	1	0.00%	9.911
MISC PRIMARY METAL PRODUCTS	3390	0.797	1	3	25.00%	9.911
METAL CANS	3411	0.382	2	5	28.57%	1.668
METAL SHIPPING BARRELS,DRUMS	3412	0.308	1	3	25.00%	1.668
CUTLERY,HAND TOOLS,GEN HRDWR	3420	0.176	10	11	47.62%	1.668
HEATING EQ, PLUMBING FIXTURE	3430	0.218	3	4	42.86%	1.668
HEATING EQ,EX ELEC,AIR FURNC	3433	0.395	1	4	20.00%	1.668
FABRICATED STRUCTURAL METAL	3440	0.224	3	5	37.50%	1.668
METAL DOORS,FRAMES,MOLD,TRIM	3442	0.173	3	8	27.27%	1.668
FABRICATED PLATE WORK	3443	0.176	5	12	29.41%	1.668
SHEET METAL WORK	3444	0.537	2	3	40.00%	1.668
PREFAB METAL BLDGS & COMP	3448	0.341	2	8	20.00%	1.668
SCREW MACHINE PRODUCTS	3451	1.000	1	0	100.00%	1.668
BOLT,NUT,SCREW,RIVETS,WASHRS	3452	0.239	8	9	47.06%	1.668
METAL FORGINGS AND STAMPINGS	3460	0.181	7	9	43.75%	1.668
COATING,ENGRAVING,ALLIED SVC	3470	0.835	0	7	0.00%	1.668
ORDNANCE & ACCESSORIES	3480	0.360	2	2	50.00%	1.668
MISC FABRICATED METAL PRODS	3490	0.152	19	25	43.18%	1.668
ENGINES AND TURBINES	3510	0.311	2	3	40.00%	6.466
FARM MACHINERY AND EQUIPMENT	3523	0.182	5	11	31.25%	6.466
LAWN, GARDEN TRACTORS, EQUIP	3524	0.452	1	2	33.33%	6.466
CONSTR,MINING,MATL HANDLE EQ	3530	0.270	2	4	33.33%	6.466
CONSTRUCTION MACHINERY & EQ	3531	0.400	6	7	46.15%	6.466
MNG MACHY, EQ, EX OIL FIELD	3532	0.256	1	3	25.00%	6.466
OIL & GAS FIELD MACHY, EQUIP	3533	0.163	5	5	50.00%	6.466
INDL TRUCKS,TRACTORS,TRAILRS	3537	0.217	4	10	28.57%	6.466
METALWORKING MACHINERY & EQ	3540	0.108	8	19	29.63%	6.466
MACHINE TOOLS, METAL CUTTING	3541	0.293	3	4	42.86%	6.466
SPECIAL INDUSTRY MACHINERY	3550	0.269	0	7	0.00%	6.466
PRINTING TRADES MACHY, EQUIP	3555	0.409	0	8	0.00%	6.466
SPECIAL INDUSTRY MACHY, NEC	3559	0.149	7	20	25.93%	6.466
GENERAL INDUSTRIAL MACH & EQ	3560	0.332	5	13	27.78%	6.466
PUMPS AND PUMPING EQUIPMENT	3561	0.172	7	3	70.00%	6.466
BALL AND ROLLER BEARINGS	3562	0.444	3	5	37.50%	6.466
INDL COML FANS,BLOWRS,OTH EQ	3564	0.183	5	10	33.33%	6.466
INDL PROCESS FURNACES, OVENS	3567	0.188	2	5	28.57%	6.466
GENERAL INDL MACH & EQ, NEC	3569	0.512	2	12	14.29%	6.466
COMPUTER & OFFICE EQUIPMENT	3570	0.431	0	7	0.00%	6.466
ELECTRONIC COMPUTERS	3571	0.404	1	20	4.76%	6.466
COMPUTER STORAGE DEVICES	3572	0.361	0	10	0.00%	6.466
COMPUTER TERMINALS	3575	0.152	1	14	6.67%	6.466
COMPUTER COMMUNICATION EQUIP	3576	0.214	0	7	0.00%	6.466
COMPUTER PERIPHERAL EQ, NEC	3577	0.691	0	22	0.00%	6.466
CALCULATE,ACCT MACH,EX COMP	3578	0.702	0	7	0.00%	6.466
OFFICE MACHINES, NEC	3579	0.238	1	12	7.69%	6.466

Table B1 (continued)

Industry Name	SIC	Concentration	Number of firms LIFO	Non-LIFO	% LIFO	Elasticity
REFRIG & SERVICE IND MACHINE	3580	0.191	4	11	26.67%	6.466
AIR COND,HEATING,REFRIG EQ	3585	0.333	12	10	54.55%	6.466
MISC INDL, COML, MACHY & EQ	3590	0.257	5	5	50.00%	6.466
ELECTR, OTH ELEC EQ, EX CMP	3600	0.232	2	5	28.57%	1.045
PWR,DISTR,SPECL TRANSFORMERS	3612	0.391	4	5	44.44%	1.045
SWITCHGEAR & SWITCHBOARD APP	3613	0.550	2	2	50.00%	1.045
ELECTRICAL INDL APPARATUS	3620	0.570	6	13	31.58%	1.045
MOTORS AND GENERATORS	3621	0.432	3	14	17.65%	1.045
HOUSEHOLD APPLIANCES	3630	0.162	8	5	61.54%	1.045
ELECTRIC HOUSEWARES AND FANS	3634	0.319	3	8	27.27%	1.045
ELECTRIC LIGHTING,WIRING EQ	3640	0.255	6	22	21.43%	1.045
HOUSEHOLD AUDIO & VIDEO EQ	3651	0.196	1	21	4.55%	1.045
PHONO RECRDS,AUDIO TAPE,DISK	3652	0.522	0	6	0.00%	1.045
TELE & TELEGRAPH APPARATUS	3661	0.646	1	26	3.70%	1.045
RADIO,TV BROADCAST, COMM EQ	3663	0.210	2	47	4.08%	1.045
COMMUNICATIONS EQUIP, NEC	3669	0.485	0	10	0.00%	1.045
ELECTRONIC COMP, ACCESSORIES	3670	0.729	2	15	11.76%	1.045
PRINTED CIRCUIT BOARDS	3672	0.231	0	8	0.00%	1.045
SEMICONDUCTOR,RELATED DEVICE	3674	0.309	4	30	11.76%	1.045
ELECTR COIL,TRANSFRM,INDUCTR	3677	1.000	0	1	0.00%	1.045
ELECTRONIC CONNECTORS	3678	0.266	0	9	0.00%	1.045
ELECTRONIC COMPONENTS, NEC	3679	0.279	1	47	2.08%	1.045
MISC ELEC MACHY,EQ,SUPPLIES	3690	0.346	4	29	12.12%	1.045
MAGNETC,OPTIC RECORDNG MEDIA	3695	0.866	0	2	0.00%	1.045
MOTOR VEHICLES & CAR BODIES	3711	0.156	6	14	30.00%	18.956
TRUCK AND BUS BODIES	3713	0.279	2	6	25.00%	18.956
MOTOR VEHICLE PART,ACCESSORY	3714	0.097	22	36	37.93%	18.956
TRUCK TRAILERS	3715	1.000	0	1	0.00%	18.956
MOTOR HOMES	3716	0.295	1	8	11.11%	18.956
AIRCRAFT AND PARTS	3720	1.000	0	1	0.00%	18.956
AIRCRAFT	3721	0.264	3	10	23.08%	18.956
AIRCRAFT ENGINE,ENGINE PARTS	3724	0.445	3	8	27.27%	18.956
AIRCRAFT PARTS, AUX EQ, NEC	3728	0.267	2	17	10.53%	18.956
SHIP & BOAT BLDG & REPAIRING	3730	0.255	2	16	11.11%	18.956
RAILROAD EQUIPMENT	3743	0.285	2	5	28.57%	18.956
GUIDED MISSILES & SPACE VEHC	3760	0.524	2	1	66.67%	18.956
MISC TRANSPORTATION EQUIP	3790	0.551	1	3	25.00%	18.956
SRCH,DET,NAV,GUID,AERO SYS	3812	0.492	0	36	0.00%	1.702
LAB APPARATUS AND FURNITURE	3821	0.399	1	5	16.67%	1.702
AUTOMATIC REGULATNG CONTROLS	3822	0.684	2	3	40.00%	1.702
INDUSTRIAL MEASUREMENT INSTR	3823	0.126	4	22	15.38%	1.702
TOTALIZING FLUID METERS	3824	0.469	0	4	0.00%	1.702
ELEC MEAS & TEST INSTRUMENTS	3825	0.252	2	29	6.45%	1.702
LAB ANALYTICAL INSTRUMENTS	3826	0.151	1	22	4.35%	1.702
OPTICAL INSTRUMENTS & LENSES	3827	0.532	0	7	0.00%	1.702

Table B1 (continued)

Industry Name	SIC	Concentration	Number of firms LIFO	Non-LIFO	% LIFO	Elasticity
MEAS & CONTROLLING DEV, NEC	3829	0.174	0	12	0.00%	1.702
SURGICAL,MED INSTR,APPARATUS	3841	0.237	1	34	2.86%	1.702
ORTHO,PROSTH,SURG APPL,SUPLY	3842	0.304	3	12	20.00%	1.702
DENTAL EQUIPMENT & SUPPLIES	3843	0.532	1	9	10.00%	1.702
X-RAY & RELATED APPARATUS	3844	0.484	0	4	0.00%	1.702
ELECTROMEDICAL APPARATUS	3845	0.421	1	15	6.25%	1.702
OPHTHALMIC GOODS	3851	0.361	0	5	0.00%	1.702
PHOTOGRAPHIC EQUIP & SUPPL	3861	0.352	2	20	9.09%	1.702
WATCHES, CLOCKS AND PARTS	3873	1.000	0	1	0.00%	1.702
JEWELRY,SILVERWR,PLATED WARE	3910	0.375	1	3	25.00%	1.545
JEWELRY, PRECIOUS METAL	3911	0.416	2	2	50.00%	1.545
MUSICAL INSTRUMENTS	3931	0.416	1	4	20.00%	1.545
DOLLS AND STUFFED TOYS	3942	1.000	0	1	0.00%	1.545
GAMES,TOYS,CHLD VEH,EX DOLLS	3944	0.099	2	14	12.50%	1.545
SPORTING & ATHLETIC GDS,NEC	3949	0.319	6	7	46.15%	1.545
PENS,PENCILS,OTH OFFICE MATL	3950	0.174	2	6	25.00%	1.545
COSTUME JEWLRY,BUTTON,NOTION	3960	0.811	0	3	0.00%	1.545
MISC MANUFACTURNG INDUSTRIES	3990	0.724	3	13	18.75%	1.545
RAILROADS,LINE-HAUL OPERATNG	4011	0.139	1	15	6.25%	na
RR SWITCHING, TERMINAL ESTAB	4013	1.000	0	1	0.00%	na
TRANSIT & PASSENGER TRANS	4100	0.487	0	3	0.00%	na
TRUCKING,COURIER SVC,EX AIR	4210	0.163	2	16	11.11%	na
TRUCKING, EXCEPT LOCAL	4213	0.163	0	15	0.00%	na
PUBLIC WAREHOUSING	4220	0.922	0	3	0.00%	na
WATER TRANSPORTATION	4400	0.344	1	5	16.67%	na
AIR TRANSPORT, SCHEDULED	4512	0.088	0	30	0.00%	na
AIR COURIER SERVICES	4513	1.000	0	1	0.00%	na
AIR TRANSPORT, NONSCHEDULED	4522	0.522	0	2	0.00%	na
AIRPORTS & TERMINAL SERVICES	4581	0.903	0	2	0.00%	na
PIPE LINES, EX NATURAL GAS	4610	1.000	0	1	0.00%	na
TRANSPORTATION SERVICES	4700	0.508	0	3	0.00%	na
ARRANGE TRANS-FREIGHT, CARGO	4731	1.000	0	1	0.00%	na
RADIOTELEPHONE COMMUNICATION	4812	0.811	0	8	0.00%	na
PHONE COMM EX RADIOTELEPHONE	4813	0.329	1	65	1.52%	na
TELEGRAPH & OTH MESSAGE COMM	4822	0.972	0	2	0.00%	na
RADIO BROADCASTING STATIONS	4832	0.525	0	2	0.00%	na
TELEVISION BROADCAST STATION	4833	0.401	1	10	9.09%	na
CABLE AND OTHER PAY TV SVCS	4841	0.216	0	8	0.00%	na
COMMUNICATIONS SERVICES, NEC	4899	0.551	0	2	0.00%	na
NATURAL GAS TRANSMISSION	4922	0.128	1	14	6.67%	na
NATURAL GAS TRANSMIS & DISTR	4923	0.506	0	2	0.00%	na
NATURAL GAS DISTRIBUTION	4924	0.429	0	3	0.00%	na
WATER SUPPLY	4941	0.165	0	20	0.00%	na
SANITARY SERVICES	4950	0.903	0	2	0.00%	na
REFUSE SYSTEMS	4953	1.000	0	1	0.00%	na

Table B1 (continued)

Industry Name	SIC	Concentration	Number of firms LIFO	Non-LIFO	% LIFO	Elasticity
HAZARDOUS WASTE MANAGEMENT	4955	0.394	0	3	0.00%	na
COGENERATN-SM POWER PRODUCER	4991	0.992	0	2	0.00%	na
DURABLE GOODS-WHOLESALE	5000	0.970	1	2	33.33%	na
MOTOR VEH PARTS, SUPPLY-WHSL	5010	0.204	4	7	36.36%	na
MOTOR VEH SUPLY,NEW PTS-WHSL	5013	0.647	3	6	33.33%	na
FURNITURE & HOME FURNSH-WHSL	5020	0.846	0	2	0.00%	na
LUMBER AND CONSTR MATL-WHSL	5030	0.248	0	6	0.00%	na
LUMBER, PLYWD, MILLWORK-WHSL	5031	0.455	1	5	16.67%	na
PROF & COML EQ & SUPPLY-WHSL	5040	0.233	4	13	23.53%	na
COMPUTERS & SOFTWARE-WHSL	5045	0.752	0	3	0.00%	na
MED, DENTAL, HOSP EQ-WHSL	5047	0.278	0	6	0.00%	na
METALS,MINERALS,EX PETE-WHSL	5050	0.858	0	2	0.00%	na
METALS SERVICE CENTERS-WHSL	5051	0.221	8	6	57.14%	na
ELEC APPARATUS & EQUIP-WHSL	5063	0.369	1	10	9.09%	na
ELEC APPLIANCE,TV,RADIO-WHSL	5064	1.000	0	1	0.00%	na
ELECTRONIC PARTS,EQ-WHSL,NEC	5065	0.206	2	19	9.52%	na
HARDWR, PLUMB, HEAT EQ-WHSL	5070	0.183	5	7	41.67%	na
HARDWARE-WHOLESALE	5072	0.505	2	1	66.67%	na
MACHINERY AND EQUIPMENT-WHSL	5080	0.128	3	13	18.75%	na
CONSTR,MNG (EX PETE) EQ-WHSL	5082	0.437	1	2	33.33%	na
INDUSTRIAL MACH & EQ-WHSL	5084	0.178	1	6	14.29%	na
MISC DURABLE GOODS-WHSL	5090	0.259	1	7	12.50%	na
SCRAP & WASTE MATERIALS-WHSL	5093	0.912	0	2	0.00%	na
JEWELRY & WATCHES-WHSL	5094	0.454	1	3	25.00%	na
DURABLE GOODS-WHOLESALE, NEC	5099	0.206	1	10	9.09%	na
PAPER & PAPER PRODUCTS-WHSL	5110	0.349	3	6	33.33%	na
DRUGS AND PROPRIETARY-WHSL	5122	0.321	1	17	5.56%	na
APPAREL,PIECE GDS,NOTNS-WHSL	5130	0.294	1	6	14.29%	na
GROCERIES & RELATED PDS-WHSL	5140	0.171	4	16	20.00%	na
GROCERIES, GENERAL LINE-WHSL	5141	0.114	2	13	13.33%	na
FARM-PRODUCT RAW MATL-WHSL	5150	0.728	0	2	0.00%	na
CHEMICALS & ALLIED PDS-WHSL	5160	0.714	3	4	42.86%	na
PETROLEUM BULK STATIONS-WHSL	5171	0.861	3	2	60.00%	na
PETROLEUM,EX BULK STATN-WHSL	5172	0.484	0	6	0.00%	na
MISC NONDURABLE GOODS-WHSL	5190	0.222	3	12	20.00%	na
BLDG MATL,HARDWR,GARDEN-RETL	5200	0.520	0	6	0.00%	na
LUMBER & OTH BLDG MATL-RETL	5211	0.171	3	14	17.65%	na
MOBILE HOME DEALERS	5271	0.521	0	2	0.00%	na
DEPARTMENT STORES	5311	0.137	26	19	57.78%	na
VARIETY STORES	5331	0.276	10	26	27.78%	na
MISC GENERAL MDSE STORES	5399	0.183	1	9	10.00%	na
FOOD STORES	5400	1.000	0	1	0.00%	na
GROCERY STORES	5411	0.064	26	39	40.00%	na
CONVENIENCE STORES	5412	0.483	1	7	12.50%	na
AUTO DEALERS, GAS STATIONS	5500	0.443	1	6	14.29%	na

Table B1 (continued)

Industry Name	SIC	Concentration	Number of firms LIFO	Non-LIFO	% LIFO	Elasticity
AUTO AND HOME SUPPLY STORES	5531	0.229	2	4	33.33%	na
APPAREL AND ACCESSORY STORES	5600	0.230	1	14	6.67%	na
WOMEN'S CLOTHING STORES	5621	0.138	1	18	5.26%	na
FAMILY CLOTHING STORES	5651	0.567	1	7	12.50%	na
SHOE STORES	5661	0.530	2	10	16.67%	na
HOME FURNITURE & EQUIP STORE	5700	0.385	0	5	0.00%	na
FURNITURE STORES	5712	0.206	1	12	7.69%	na
RADIO,TV,CONS ELECTR STORES	5731	0.545	0	6	0.00%	na
RECORD AND TAPE STORES	5735	0.753	0	2	0.00%	na
EATING PLACES	5812	0.126	2	83	2.35%	na
MISCELLANEOUS RETAIL	5900	0.255	0	7	0.00%	na
DRUG & PROPRIETARY STORES	5912	0.079	12	17	41.38%	na
MISC SHOPPING GOODS STORES	5940	0.151	2	10	16.67%	na
JEWELRY STORES	5944	0.486	0	8	0.00%	na
HOBBY, TOY, AND GAME SHOPS	5945	0.361	1	2	33.33%	na
NONSTORE RETAILERS	5960	0.304	0	7	0.00%	na
CATALOG, MAIL-ORDER HOUSES	5961	0.548	1	17	5.56%	na
RETAIL STORES	5990	0.211	0	11	0.00%	na
FUNCTIONS REL TO DEP BKE,NEC	6099	0.982	0	3	0.00%	na
PERSONAL CREDIT INSTITUTIONS	6141	0.999	1	1	50.00%	na
SHORT-TERM BUS CREDIT, EX AG	6153	0.540	0	3	0.00%	na
MORTGAGE BANKERS & LOAN CORR	6162	1.000	0	1	0.00%	na
FINANCE LESSORS	6172	1.000	0	1	0.00%	na
FINANCE-SERVICES	6199	0.699	1	1	50.00%	na
SECURITY & COMMODITY BROKERS	6200	1.000	0	1	0.00%	na
SECURITY BROKERS & DEALERS	6211	0.961	0	5	0.00%	na
LIFE INSURANCE	6311	1.000	0	1	0.00%	na
HOSPITAL & MEDICAL SVC PLANS	6324	1.000	0	1	0.00%	na
FIRE, MARINE, CASUALTY INS	6331	0.689	3	4	42.86%	na
TITLE INSURANCE	6361	1.000	0	1	0.00%	na
INS AGENTS,BROKERS & SERVICE	6411	0.406	0	4	0.00%	na
REAL ESTATE	6500	0.320	1	7	12.50%	na
OPERATORS-NONRES BLDGS	6512	0.341	1	14	6.67%	na
OPERATORS-APARTMENT BLDGS	6513	0.562	0	3	0.00%	na
LESSORS OF REAL PROPERTY,NEC	6519	0.792	0	2	0.00%	na
REAL ESTATE AGENTS & MGRS	6531	0.546	0	2	0.00%	na
REAL ESTATE DEALERS	6532	0.875	0	2	0.00%	na
SUBDIVID,DEVELOP,EX CEMETERY	6552	0.275	0	8	0.00%	na
OIL ROYALTY TRADERS	6792	1.000	0	1	0.00%	na
PATENT OWNERS AND LESSORS	6794	0.207	1	15	6.25%	na
MINERAL ROYALTY TRADERS	6795	1.000	0	1	0.00%	na
REAL ESTATE INVESTMENT TRUST	6798	0.343	1	4	20.00%	na
INVESTORS, NEC	6799	0.382	4	12	25.00%	na
HOTELS, OTHER LODGING PLACES	7000	0.623	0	2	0.00%	na
HOTELS,MOTELS,TOURIST COURTS	7011	0.230	0	29	0.00%	na

Table B1 (continued)

Industry Name	SIC	Concentration	Number of firms			Elasticity
			LIFO	Non-LIFO	% LIFO	
PERSONAL SERVICES	7200	0.167	2	18	10.00%	na
ADVERTISING AGENCIES	7311	0.419	0	4	0.00%	na
CREDIT REPORTING AGENCIES	7320	0.712	0	3	0.00%	na
SVCS TO DWELLINGS, OTH BLDGS	7340	0.367	0	4	0.00%	na
MISC EQUIP RENTAL & LEASING	7350	0.493	0	3	0.00%	na
EQUIP RENTAL & LEASING, NEC	7359	0.602	0	10	0.00%	na
EMPLOYMENT AGENCIES	7361	1.000	0	1	0.00%	na
HELP SUPPLY SERVICES	7363	0.589	0	5	0.00%	na
CMP PROGRAMMING,DATA PROCESS	7370	0.985	0	7	0.00%	na
COMPUTER PROGRAMMING SERVICE	7371	0.683	1	2	33.33%	na
PREPACKAGED SOFTWARE	7372	0.228	0	8	0.00%	na
CMP INTEGRATED SYS DESIGN	7373	0.458	2	16	11.11%	na
CMP PROCESSING,DATA PREP SVC	7374	0.329	0	15	0.00%	na
COMPUTER RENTAL & LEASING	7377	0.569	0	3	0.00%	na
MISC BUSINESS SERVICES	7380	0.626	0	5	0.00%	na
DETECT,GUARD,ARMOR CAR SVCS	7381	0.343	1	6	14.29%	na
PHOTOFINISHING LABORATORIES	7384	0.311	0	8	0.00%	na
TELEPHONE INTERCONNECT SYS	7385	1.000	0	1	0.00%	na
BUSINESS SERVICES, NEC	7389	0.160	0	18	0.00%	na
AUTO REPAIR,SERVICES,PARKING	7500	0.826	0	3	0.00%	na
AUTO RENT & LEASE,NO DRIVERS	7510	0.556	0	3	0.00%	na
MISC REPAIR SERVICES	7600	1.000	0	1	0.00%	na
MOTION PIC, VIDEOTAPE PRODTN	7812	0.343	1	7	12.50%	na
SVC TO MOTION PICTURE PRODTN	7819	0.765	0	4	0.00%	na
MOTION PICT, VIDEOTAPE DISTR	7822	1.000	0	1	0.00%	na
MOTION PICTURE THEATERS	7830	0.349	0	4	0.00%	na
AMUSEMENT & RECREATION SVCS	7900	0.276	0	7	0.00%	na
RACING,INCL TRACK OPERATIONS	7948	0.440	0	3	0.00%	na
MISC AMUSEMENT & REC SERVICE	7990	0.183	0	14	0.00%	na
OFFICES OF MEDICAL DOCTORS	8011	1.000	0	1	0.00%	na
NURSING & PERSONAL CARE FAC	8050	0.272	0	7	0.00%	na
SKILLED NURSING CARE FAC	8051	0.380	1	9	10.00%	na
HOSPITALS	8060	0.255	1	11	8.33%	na
GEN MED & SURGICAL HOSPITALS	8062	0.200	0	10	0.00%	na
MEDICAL LABORATORIES	8071	0.621	0	5	0.00%	na
HOME HEALTH CARE SERVICES	8082	1.000	0	1	0.00%	na
MISC HEALTH & ALLIED SVC,NEC	8090	0.920	0	2	0.00%	na
EDUCATIONAL SERVICES	8200	0.256	0	7	0.00%	na
SOCIAL SERVICES	8300	1.000	0	1	0.00%	na
MUSEUM,GALLERY,BOTANIC GARDN	8400	1.000	0	1	0.00%	na
ENGR,ACC,RESH,MGMT,REL SVCS	8700	0.355	0	5	0.00%	na
ENGINEERING SERVICES	8711	0.198	0	12	0.00%	na
ACCOUNT,AUDIT,BOOKKEEP SVCS	8721	1.000	0	1	0.00%	na
COML PHYSICAL, BIOLOGCL RESH	8731	0.876	0	3	0.00%	na
TESTING LABORATORIES	8734	0.838	0	3	0.00%	na

Table B1 (continued)

Industry Name	SIC	Concentration	Number of firms LIFO	Non-LIFO	% LIFO	Elasticity
MANAGEMENT SERVICES	8741	1.000	0	1	0.00%	na
MANAGEMENT CONSULTING SVCS	8742	0.302	0	8	0.00%	na
FACILITIES SUPPORT MGMT SVCS	8744	0.534	1	1	50.00%	na
NON-OPERATING ESTABLISHMENTS	9995	0.157	1	28	3.45%	na
CONGLOMERATES	9997	0.720	3	2	60.00%	na
mean		0.447	2	9	17.77%	
median		0.355	1	6	10.00%	
minimum		0	0	0	0.00%	
maximum		1.000	30	83	100.00%	
standard deviation		0.285	3.73	10.00	20.86%	

Concentration = sum of the squared shares of each firm in the industry, where a firm's share equals the firm's sales divided by total sales for the industry.

Elasticity = means for 2-digit SIC industry codes, taken from http://faculty.chicagogsb.edu/christian.broda/website/research/unrestricted/TradeElasticities/TradeElasticities.html and matched to Compustat SIC codes using http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/TradeConcordances.html

na = elasticity data not available for this industry.

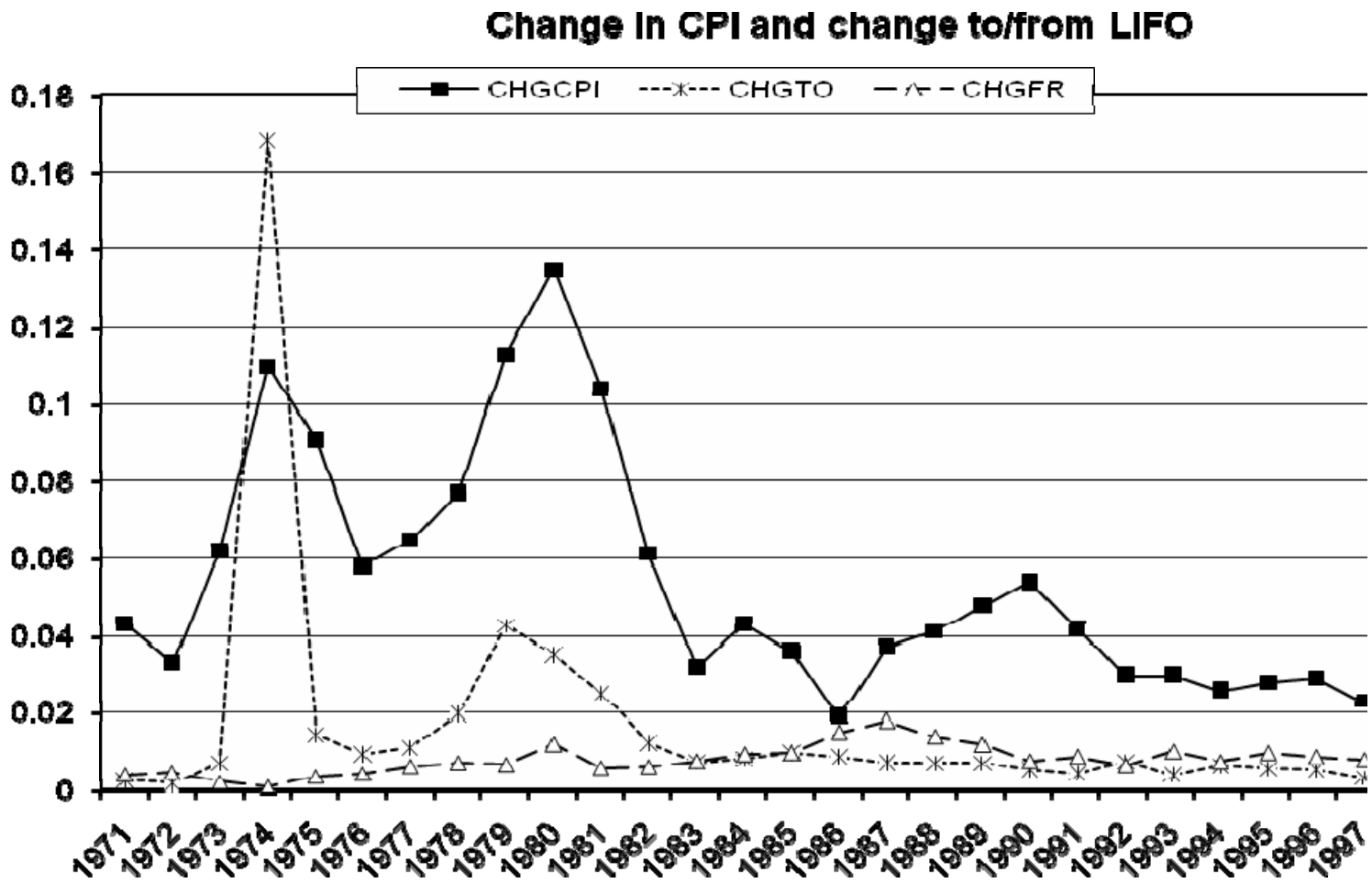
Change in CPI and change to/from LIFO
CHGCPI
CHGTO
CHGFR
0.18
0.16
0.14
0.12
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Figure 1

Table 1
Descriptive statistics for 1976 sample

Variable	Mean	SD	Minimum	Maximum	Mean LIFO	Mean Non-LIFO
			Panel A: full sample (n = 4,492)			
sales (millions)	425.379	2,043.090	0.007	48,631.110	947.634	295.069
inventory/assets	0.266	0.167	0.000	0.886	0.280	0.262
debt/assets	0.557	0.379	0.011	10.791	0.479	0.576
CGS/inventory	10.080	30.869	0	1,089.500	6.073	11.079
concentration	0.283	0.193	0.064	1.000	0.247	0.292
number of obs	4,492				897	3,595
			Panel B: smaller sample with elasticity estimates (n = 2,320)			
sales (millions)	362.951	1,910.000	0.007	47,181.000	799.634	230.793
inventory/assets	0.304	0.128	0.001	0.886	0.281	0.311
debt/assets	0.529	0.332	0.040	5.806	0.455	0.551
CGS/inventory	5.191	24.088	0.025	1,090.000	4.699	5.340
concentration	0.280	0.166	0.072	1.000	0.255	0.287
elasticity	5.503	4.949	1.948	19.956	6.316	5.258
number of obs	2,320				539	1,781

concentration = industry concentration, for each industry equal to the sum of the squared shares of each firm in the industry, where a firm's share equals the firm's sales divided by total sales for the industry.
elasticity = elasticity estimates are means for 2-digit SIC industry codes, taken from http://faculty.chicagogsb.edu/christian.broda/website/research/unrestricted/TradeElasticities/TradeElasticities.html and matched to Compustat SIC codes using http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/TradeConcordances.html

Table 2
Correlation matrix for smaller 1976 sample with elasticity estimates (n = 2,320)

	LIFO	sales	inv/assets	debt/assets	cgs/inv	concent	elasticity
LIFO	1	0.126	-0.097	-0.122	-0.011	-0.081	0.090
		<.0001	<.0001	<.0001	0.589	<.0001	<.0001
sales (millions)	0.126	1	-0.060	-0.001	-0.004	-0.021	0.161
	<.0001		0.004	0.963	0.832	0.318	<.0001
inventory/assets	-0.097	-0.060	1	0.050	-0.161	-0.009	0.054
	<.0001	0.004		0.016	<.0001	0.651	0.009
debt/assets	-0.122	-0.001	0.050	1	0.015	0.034	0.040
	<.0001	0.963	0.016		0.472	0.102	0.054
CGS/inventory	-0.011	-0.004	-0.161	0.015	1	0.018	0.007
	0.589	0.832	<.0001	0.472		0.397	0.726
concentration	-0.081	-0.021	-0.009	0.034	0.018	1	-0.125
	<.0001	0.318	0.651	0.102	0.397		<.0001
elasticity	0.090	0.161	0.054	0.040	0.007	-0.125	1
	<.0001	<.0001	0.009	0.054	0.726	<.0001	

LIFO = 1 if the firm uses LIFO and 0 otherwise.
concentration = industry concentration, for each industry equal to the sum of the squared shares of each firm in the industry, where a firm's share equals the firm's sales divided by total sales for the industry.
elasticity = elasticity estimates are means for 2-digit SIC industry codes, taken from http://faculty.chicagogsb.edu/christian.broda/website/research/unrestricted/TradeElasticities/TradeElasticities.html and matched to Compustat SIC codes using http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/TradeConcordances.html

Table 3
Logit results; dependent variable equals 1 if LIFO is primary inventory method, 0 otherwise
Excluding elasticity estimates

	1976	1977	1978	1979	1980	1981	1982
intercept	-1.675***	-1.685***	-1.900***	-1.852***	-1.892***	-2.268***	-2.295***
	0.184	0.191	0.195	0.193	0.181	0.173	0.170
CONC	-1.019***	-0.899***	-0.911***	-1.057***	-0.733***	-0.400**	-0.352*
	0.230	0.229	0.230	0.222	0.212	0.202	0.201
SIZE	0.386***	0.380***	0.396***	0.408***	0.402***	0.414***	0.415***
	0.021	0.021	0.021	0.020	0.020	0.019	0.019
PCTINV	-0.011	0.167	0.486	1.044***	1.329***	1.650***	1.431***
	0.290	0.297	0.301	0.299	0.291	0.283	0.288
LEVER	-1.751***	-1.777***	-1.640***	-1.846***	-1.944***	-1.664***	-1.406***
	0.225	0.225	0.227	0.222	0.214	0.205	0.187
INVTO	-0.029***	-0.033***	-0.028***	-0.020***	-0.014***	-0.009**	-0.016***
	0.006	0.006	0.061	0.005	0.005	0.004	0.004
n=	4,492	4,469	4,322	4,215	4,204	4,171	4,355
pseudo R^2	0.116	0.120	0.127	0.147	0.151	0.152	0.158

numbers below coefficient estimates are standard errors.
***,**,* indicates significance at two-tailed p-values less than 0.01, 0.05, and 0.1 respectively.
CONC = industry concentration, for each industry equal to the sum of the squared shares of each firm in the industry, where a firm's share equals the firm's sales divided by total sales for the industry.
SIZE = log of sales.
PCTINV = percentage of assets represented by inventory: (inventory)/(assets).
LEVER = leverage: (total liabilities)/(total assets).
INVTO = inventory turnover ratio: (cost of goods sold)/(inventory).

Table 4
Logit results; dependent variable equals 1 if LIFO is primary inventory method, 0 otherwise
Including elasticity estimates

	1976	1977	1978	1979	1980	1981	1982
intercept	-1.517***	-1.475***	-1.575***	-1.555***	-1.302***	-1.776***	-1.844***
	0.267	0.274	0.275	0.274	0.251	0.243	0.241
CONC	-0.733**	-0.836**	-0.704**	-0.876***	-0.738**	-0.525*	-0.617**
	0.339	0.340	0.345	0.332	0.317	0.305	0.308
ELAST	0.216***	0.273***	0.272***	0.322***	0.260***	0.303***	0.232***
	0.072	0.072	0.074	0.073	0.071	0.071	0.071
SIZE	0.405***	0.402***	0.432***	0.414***	0.393***	0.421***	0.430***
	0.029	0.029	0.029	0.029	0.027	0.027	0.027
PCTINV	-1.585***	-1.717***	-1.845***	-1.823***	-1.966***	-1.510***	-1.314***
	0.501	0.508	0.497	0.487	0.463	0.456	0.460
LEVER	-1.981***	-2.027***	-2.098***	-1.748***	-1.682***	-1.445***	-1.307***
	0.303	0.303	0.319	0.303	0.282	0.277	0.251
INVTO	-0.005	-0.004	0.002	-0.001	-0.001	0.000	-0.001
	0.009	0.008	0.005	0.004	0.002	0.003	0.003
n=	2,320	2,276	2,205	2,153	2,151	2,125	2,223
pseudo R^2	0.135	0.145	0.162	0.168	0.168	0.174	0.178

numbers below coefficient estimates are standard errors.
***,**,* indicates significance at two-tailed p-values less than 0.01, 0.05, and 0.1 respectively.
CONC = industry concentration, for each industry equal to the sum of the squared shares of each firm in the industry, where a firm's share equals the firm's sales divided by total sales for the industry.
ELAST = log of an industry's elasticity; elasticity estimates are means for 2-digit SIC industry codes, taken from http://faculty.chicagogsb.edu/christian.broda/website/research/unrestricted/TradeElasticities/TradeElasticities.html and matched to Compustat SIC codes using http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/TradeConcordances.html
SIZE = log of sales.
PCTINV = percentage of assets represented by inventory: (inventory)/(assets).
LEVER = leverage: (total liabilities)/(total assets).
INVTO = inventory turnover ratio: (cost of goods sold)/(inventory).