Removing Deposit Rate Ceilings: How Will Bank Profits Fare?

by Mark J. Flannery*

Among its many important provisions, the Depository Institution Deregulation and Monetary Control Act (DIDMCA) of 1980 mandated the removal of most deposit rate ceilings by early 1986. These so-called "Regulation Q" ceilings have governed bank competition for deposit balances since the Banking Act of 1933. Deposit rate ceilings have applied to thrift institutions (savings and loan associations and mutual savings banks) since September 1966. After many years of relatively constant deposit rate levels, the recent introduction of money market accounts and "super-NOW" transaction accounts indicates that the actual pace of deregulation will probably exceed that required by DIDMCA's statutory deadline.

Regulation Q has frequently been credited with keeping down deposit costs and therefore reducing loan rates (especially on mortgages) and/or raising financial institutions' profits. Under this view, the removal of deposit rate ceilings will have a serious effect on banking firms and their customers. An alternative view, however, contends that Regulation Q ceilings have had relatively little effect on loan rates or bank profits. Dismantling those ceilings should therefore cause no substantial changes in bank profitability. Which view of the effectiveness of Regulation Q is correct has important implications for the health and safety of financial institutions in the coming years.

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A SIMPLE—BUT
INCOMPLETE—ASSESSMENT
OF DEPOSIT RATE DEREGULATION

One possible result of Regulation Q ceilings is that they have been completely effective as a means of limiting bank costs. That is, a 5-1/4% ceiling on regular savings accounts means that these deposit balances cost banks no more than 5-1/4% per year (aside from compounding), regardless of the level of unregulated market interest rates. In this situation, if the rate ceiling were removed, competition would force banks to pay existing depositors higher rates for the same deposit balances. This would cause a dollar-for-dollar reduction in bank profits. Figure 1 summarizes the effect of deposit rate deregulation on commercial banks under this view of the world. (See the APPENDIX for details on how these numbers were calculated.)

The data reported in Figure 1 suggest that complete retail deposit rate deregulation would have disastrous consequences for bank profitability. If this view of deposit rate ceilings is correct, allowing banks to pay fully competitive rates on retail balances would reduce bank profits about 80%. Some who have performed similar calculations argue that deregulation should be opposed in the interest of protecting the viability of the U.S. financial system. Such a judgment may not stand up, however, once we recognize that Regulation Q has affected bank costs in ways *other than* its direct influence on interest expenses. A more complete evaluation of the effects of Regulation Q suggests a much different outcome for bank profits as deposit ceilings are dismantled.

THE FULL EFFECT OF
DEPOSIT RATE CEILINGS

Though Regulation Q prevents explicit deposit rates from rising to their competitive levels, it does not eliminate bankers' profit incentives to compete for deposits. On the contrary, effective deposit rate ceilings

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FIGURE 1
THE EFFECT OF REMOVING REGULATION Q:
NAIVE COST ASSUMPTIONS*

	Current Stock of Deposits	Current Interest Rate Paid	Estimated "Fully Competitive" Rate	Effect on Pretax Current Operating Income	
				In Dollars	In Percent
Retail Demand	$ 83.7	0.00%	6.66%	-$5.6 billion	-28.4%
Regular Savings Deposits	$227.3	5.25%	7.74%	-$5.7 billion	-28.7%
Small Time Deposits†	$155.1	8.16%	10.95%	-$4.3 billion	-21.9%
			TOTAL	-15.6 billion	-79.0%

*Deposit data are for insured commercial banks, as of June 30, 1982 (measured in billions of dollars).

†Excludes 26-week, $10,000 and 91-day, $7,500 money market certificates, which already bear rates close to the fully competitive market rate. (The minimum denominations for these accounts were lowered to $2,500 in early 1983.)

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mean that banks earn a profit on any additional deposit balances they can attract. While they are limited in their ability to pay explicit interest, bankers employ other devices to encourage customers to hold more deposits. These devices are generally interpreted as "implicit interest"—payments to depositors in some form other than cash. Common types of implicit interest include the provision of transaction services at a price below the bank's cost and attempts to make it more convenient for customers to use banking services. (See also REGULATION Q AND BANK LOAN RATES.)

Free Depositor Services. One way banks pay implicit interest is by providing deposit services—check clearing, money orders, deposit taking, statement maintenance, and so forth—at fees substantially below production costs. Bank processing costs for retail demand deposits, for example, were about 6.19% of deposit balances in 1981. Yet banks collected service charge income equal to only 1.67% of demand balances.[1] The difference (4.52 percent per year) can be viewed as an implicit interest payment to depositors: services provided in lieu of explicit interest. If explicit retail deposit rates rose (for example with the introduction of NOW accounts paying 5-1/4 percent interest), banks would presumably recoup some of the added explicit interest expense by raising service charges.[2] Weiss (1969) reports that this type of adjustment was common when New England banks

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[1]These data on bank cost and service charges come from the Federal Reserve System's Functional Cost Analysis for 1981. The data describe banks with $50-$200 million in total deposits.

[2]A recent Wall Street *Journal* article (December 30, 1982, page 7) on the effects of interest-bearing checking ("Super NOW") accounts quotes a North Carolina banker's response to deregulation: "Now that we're paying more for money, you'll see much more explicit pricing." The article goes on to define "explicit pricing" as "a specific charge for every service, including those once considered 'free,' that banks render customers."

began offering "free" checking accounts in the late 1960s, and the more recent experience with NOW accounts seems to provide confirmation. The same effect is likely to occur for time and savings deposits: in 1981

REGULATION Q AND BANK LOAN RATES

Deposit rate ceilings have affected many dimensions of the retail deposit relationship. Some people feel that lower deposit rates—to the extent they are not offset by higher implicit interest expenditures—also benefit bank borrowers via lower loan rates. In this view, removing Regulation Q would lead banks to "pass along" their higher deposit costs via increased loan rates.

The fallacy in this view lies in assuming that bankers could increase their revenue by raising loan rates. This is true *only* if the amount of loans demanded by borrowers stays relatively constant when loan rates change. Unfortunately for bankers, basic economic analysis indicates that higher loan rates will tend to reduce the dollar value of loans on the banks' books. If bankers could increase total loan revenues by raising rates, why would they not have done it already? Despite much research on the subject, there is no persuasive evidence that Regulation Q ceilings affect the loan rate at all. One small exception to this statement is that commercial loan rates may rise when banks are allowed to pay explicit interest to their corporate depositors. The net effect on bank profits would be zero, however, as explicit deposit interest replaces the prior subsidy of loan rates dollar-for-dollar. (See Gilbert (1981)).

It appears that deposit and loan rates are effectively insulated from one another, with any effect of Regulation Q ceilings concentrated on bank profits. This occurs because borrowers are always free to go to nonbank lenders who would not be affected at all by Regulation Q ceilings. The view that deposit rate deregulation will substantially affect the average rate charged on bank loans is not very convincing.

banks recouped fees of less than two cents per dollar of noninterest expenses incurred in servicing retail time and savings accounts.[3] As deregulation progresses, consumers will find that their explicit interest earnings have increased, but so have the fees and service charges they pay for bank services. The net effect on bank profits will therefore be much smaller than the calculation in Figure 1 suggests.

Competition Via Convenience. To attract profitable deposit balances without paying higher explicit rates, banks undertake a range of costly promotional activities in the form of advertising, gifts for new accounts or new deposits, and probably most important of all, efforts to increase customers' convenience. Establishing additional branch offices, installing automated teller machines, and lengthening hours of operation all raise bank expenses, but they also make a bank more convenient for existing and potential depositors. Other things the same, a more convenient bank is likely to attract more deposits. Research on this subject indicates U.S. banks have established a large number of additional banking offices in their efforts to substitute implicit interest (in the form of convenience) for explicit interest payments prohibited by Regulation Q. For the banking industry nationally, Peterson (1981) estimates that nearly one-third of all bank offices in 1979 would not have existed without binding Regulation Q ceilings. This is further substantiated by Chase's (1981) estimate that 38.3% of all savings and loan association offices in California in 1978 existed solely because savings and loan associations were forced to compete for funds without raising explicit deposit rates. In Massachusetts, Taggart (1978) found that 25.4% of all mutual

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[3] The Federal Reserve's 1981 Functional Cost analysis indicates that retail time deposits cost banks 1% in noninterest cost, while savings accounts cost 2.4% in noninterest cost.

savings bank branches were established to compete for deposits within the restrictions imposed by Regulation Q.

An Estimate of Implicit Interest Payments. The total amount of implicit interest of all sorts—subsidized services, additional conveniences, free gifts, advertising, and so forth—has been estimated independently by two researchers. Taggart (1978) found that Massachusetts mutual savings banks in the 1970-1975 period returned to their depositors implicit interest equal to nearly 40% of the difference between the regulated deposit rates and the explicit rates he estimated would have been paid in the absence of Regulation Q. (These expenses include the added branches mentioned above.) In a second study, Spellman (1980) evaluated savings and loan associations nationally. He found approximately 50% of all explicit interest savings arising from Regulation Q were "returned" to depositors in implicit forms. Though both these studies apply to thrift institutions instead of commercial banks, there is every reason to believe that similar forces have developed there as well. The relevant conclusion seems to be "that savings banks could have paid substantially higher rates without bankrupting themselves. . . *because some of the increased interest expense would have been offset by lower operating expenses*."[4]

Applying these findings to the numbers reported in Figure 1 is straightforward. If banks cut back implicit interest payments (operating expenses) by 45% of the additional explicit rates they would pay under deregulation (the average of Taggart's and Spellman's estimates), the last two columns in Figure 1 would be 45% smaller. Note however, that the profit effect of deregulation remains substantially negative: $8.6 billion or 43.4% of pretax current operating income. It still appears that deposit rate deregulation will seriously hurt U.S. banks, *provided their*

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[4] Taggart (1978), p. 155, emphasis added.

total size remains unchanged.

Bank Size Effects. Even after adjusting for reductions in implicit interest costs, it appears the profit margin on retail deposits will shrink under deregulation. Does this mean that removing Regulation Q will reduce the profitability of U.S. banks? Not necessarily. The final effect on total dollar profits cannot be determined without considering deregulation's impact on the *volume* of deposit balances. (A supermarket, for example, has a lower markup on each item sold than a corner grocery store, but can still earn greater total profits because of its larger volume.) Without deposit rate ceilings, banks should become more attractive places for people to hold their wealth, leading to faster growth and (perhaps) higher profits.

Depositors have a number of alternative investments to bank deposits and will allocate available funds according to the *relative* rates of return offered. President Carter's Inter-Agency Task force on Regulation Q noted that Regulation Q ceilings can have an important effect on deposit flows: "during periods when market interest rates significantly exceed rate ceilings, savers as a whole tend to decrease the proportion of their savings allocated to these institutions by investing directly in market securities or allocating savings to financial intermediaries, such as money market funds and mutual bond funds, that are not subject to Regulation Q."[5] Spellman's and Taggart's evidence that implicit interest replaces no more than half the explicit interest saved because of Regulation Q implies that deregulation will raise the total return (explicit plus implicit) on deposits relative to other investments. In response, the public would supply more deposit balances to the banking system.

The connection between deposit rates paid and the total dollars deposited is called the

"interest elasticity of deposit supply." Depositors are said to supply deposit dollars *elastically* if a small increase in the deposit rate elicits a large increase in the public's desired holdings of bank deposits. With a larger volume of deposits, bank profits may rise even if the profit margin on each dollar shrinks with deregulation. Figure 1 ignores this effect; it assumes that depositors hold the same level of bank balances regardless of the return on deposits relative to other investments. A more realistic assessment is that depositors will increase their account balances when they receive higher interest. A high enough deposit supply elasticity could mean that deregulation actually *raises* bank profits. If enough new deposits flow into the banking system in the wake of deposit rate deregulation, banks could emerge even more healthy and profitable than they are today.

SOME EVIDENCE ON DEREGULATION'S IMPACT ON BANK PROFITS

The impact of deposit rate deregulation on bank profits depends on a large number of factors. However, we can assess the net effect of these interacting factors on bank profits using two types of evidence: recent accounting data on bank profitability, and evidence from the stock market's assessment of past Regulation Q changes.

THE RECENT TREND IN BANK ACCOUNTING PROFITS

The view that deregulation cripples bank profits is unsupported by recent data on aggregate bank profitability. Between 1977 and 1982, retail deposit rates were substantially deregulated. A Federal Reserve economist notes that

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[5] *Report of the President's Inter-Agency Task Force on Regulation Q* (Washington: U.S. GPO, 1979), p.16.

"small" banks are those with assets less than $100 million.] As recently as the end of 1978, almost 80 percent of the interest-bearing liabilities of small banks were subject to fixed interest ceilings." (Opper (1982), page 456)

This effective deregulation has been due largely to the new, money market certificates (MMC) first introduced on June 1, 1978. These $10,000 minimum deposit, six-month time deposits had a ceiling rate tied to the discount yield of newly auctioned 26-week Treasury bills.[6] By mid-1982 MMC accounted for $234.7 billion, or 60.4% of all bank time deposits under $100,000. In addition, NOW accounts spread from New England and Middle Atlantic states to the rest of the

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[6]The minimum denomination on this account was reduced to $2,500 on January 5, 1983.

nation's banks on December 31, 1980. Between then and June 30, 1982, commercial bank NOW balances rose by $47 billion. Despite this sharp increase in the proportion of bank retail deposits bearing market rates, bank profits remained virtually unchanged between 1977 and the first half of 1982.

Figure 2 demonstrates this profit effect for both pretax operating profits and for net income (after all taxes, capital gains, and other extraordinary income items), each deflated by total assets. A great number of factors affected bank profits during the past few years, including a substantial amount of retail deposit rate deregulation. Despite all this, bank profits have been remarkably stable. This is true not only for large banks, which rely primarily on unregulated wholesale deposits, but also for smaller, more retail-oriented institutions. Banks have apparently adjusted their portfolios and pricing policies to counteract the profit effect of paying higher rates on retail balances. If deposit rate

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FIGURE 2

BANK PROFITS BEFORE AND AFTER RECENT DEPOSIT RATE DEREGULATIONS

	1977		1981		1982†	
	Pretax Operating Profits*	Net Income*	Pretax Operating Profits*	Net Income*	Pretax Operating Profits*	Net Income*
All Insured Banks	.010	.0077	.012	.0087	.011	.0098
Banks with assets under $300 million	.010	.0087	.013	.010	.014	.0114
Banks with assets over $300 million	.0098	.0071	.011	.0079	.0096	.0074

*As a percentage of total assets at end of period.
†Annualized, using data through June 30.

deregulation has seriously hurt bank profits so far, it has not shown up in the accounting figures.

EVIDENCE FROM THE STOCK MARKET

A firm's stock price reflects the expected profitability of its future operations. When investors learn new information about a firm, they evaluate the likely effect on profitability and revise the stock's price accordingly. Examining the response of bank stock prices to past Regulation Q changes, therefore, provides one indicator of how relatively sophisticated investors feel the relative forces associated with deposit rate ceiling changes balance out. Regulation Q ceilings have been modified frequently in the past.[7] Two particular episodes of deregulation are discussed here: the removal of rate ceilings on large certificates of deposits in 1970, and the introduction of retail money market certificates (MMC) in 1978.

Deregulation of Large CD Rates. Before 1970, Regulation Q ceilings applied to all bank time deposits including certificates of deposit in excess of $100,000. Because large depositors are very responsive to interest rate levels, when market rates on commercial paper or Treasury bills rose above the major banks' permissible CD rate (for example, in 1966 and 1969), it became difficult or impossible to sell large deposits. During these periods of so-called disintermediation, banks were forced to curtail lending or to obtain loanable funds in less efficient ways. On June 23, 1970, Regulation Q was suspended for short maturity (30-89 days) time deposits greater than $100,000.

How did the stock market react to this development? Christopher James (1983) reports that the price of large, money center banks' stock *rose* about 5% relative to the

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[7]Between July 1973 and yearend 1980, retail deposit rate ceilings were changed ten times. Since 1980, the Depository Institutions Deregulation Committee has made a number of further revisions.

rest of the stock market on the day this deregulation was announced. Investors apparently felt that in this instance the high deposit supply elasticity of large depositors outweighed the higher explicit deposit rates the banks would pay for CD funds in the future. At the same time, smaller commercial banks showed no apparent change in market value, presumably because their liabilities included relatively small amounts of the newly deregulated time deposits. James' study therefore illustrates an important conceptual point: not all banks (or all thrift institutions, either) are necessarily affected by deregulation the same way. The specific factors that determine deregulation s impact on profitability may balance out differently for different types of banks.

Money Market Certificates. Probably the most substantial change in deposit rate regulation prior to passage of DIDMCA was the creation of the new MMC account on June 1, 1978. Tying the MMC rate ceiling to a current market interest rate constituted a strong break with previous deposit rate ceilings, which had been set at specific levels that changed infrequently. When this Regulation Q modification was announced on May 11, 1978, retail-oriented bank stocks fell by about 3% relative to other stocks in the market. Market investors thereby indicated that they felt the net effect of these new accounts would hurt bank profits. Apparently, retail deposit balances were not expected to increase sufficiently in response to the higher explicit rate to offset the added interest expenses allowed by deregulation. In other words, these banks were viewed as being forced to pay more for essentially the same funds. This rather small stock price decline associated with the introduction of MMC is consistent with the accounting data in Figure 2 that show little recent change in bank profitability.

The market value of large money center banks did not change significantly when MMC were introduced, which again emphasizes the fact that each bank's particular

position will determine its net response to deregulation. A monolithic response across the banking industry is unlikely to occur.

To summarize, neither recent accounting data nor the stock market's evaluation of Regulation Q changes suggests that deposit rate deregulation will have a tremendous effect on bank profits. Once we recognize the multiple influences of Regulation Q on bank operations, there is little evidence that the banking system's stability is threatened by deregulation.

CONCLUSION

Simple extrapolations from current bank balance sheets indicate that deposit rate deregulation will have seriously adverse effects on bank profits. However, incorporating the many relevant factors into the analysis suggests that profits may rise or fall with deregulation. Because deregulation is improving bankers' ability to compete with other market investments, banks with highly interest-sensitive deposits will gain substantial amounts of new investable funds. The additional profits earned on new deposits may more than offset the added interest cost of retaining old depositors. Stock market investors' past reactions to Regulation Q changes indicate that some banks will gain while others will lose under deregulation.

A second important dimension of the adjustment to deregulation concerns the timing of bank profit changes. Bankers are limited in their ability to reduce some implicit interest payments quickly when deposit rates rise. This limitation is most obvious in the case of bank branches, which cannot quickly be closed in an orderly fashion. Numerous branch closings might also generate sizable, one-time book losses that would make bank profits worse in the short run than they will eventually be.

Depending on their existing situations, some bankers will be better positioned than others to profit from the Regulation Q phase-out. The evidence suggests that large, wholesale banks will be least affected, because their current retail business is limited. Banks with a strong retail orientation will be subject to more serious changes in their traditional ways of compensating depositors. While careful planning and management will surely be required, over the long term most banks should find their profits largely unaffected by deposit rate deregulation.

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APPENDIX

THE ASSUMPTIONS UNDERLYING FIGURE 1

The data in Figure 1 describe only retail bank balances, on the assessment that corporate (and government) deposits have long borne competitive rates. For large certificates of deposit, this is obviously true: banks have been free to pay whatever rate they wish on time deposits above $100,000 since June 23, 1970. Corporate demand depositors have also received a variety of free or subsidized bank services in return for the average balances they hold. (In more recent years, this arrangement has been made explicit via the calculation of an "earnings credit allowance" on demand balances at a rate that fluctuates with market interest rates.)

Several other important assumptions underlie the numbers reported in Figure 1. First, deregulation is assumed to create competitive pressures among banks that force them to pay fully competitive rates on their deposits. These "fully competitive" rates were calculated using market interest rates from August, 1982.

Second, the "Retail Demand Deposits" category includes bank demand liabilities to the household sector. All these balances could potentially be transformed into interest-bearing NOW accounts. Figure 1 will overestimate the impact of deposit rate deregulation if some households continue to hold demand deposit accounts. On the other hand, nonprofit firms are allowed to have interest-bearing transaction accounts, though their current demand deposits are not shown from Figure 1. This omission tends to make Figure 1 underestimate the impact of deposit rate deregulation if some eligible firms will change from demand deposits to NOW accounts in the future.

Third, the "fully competitive" rate for demand and savings deposits is 100 basis points (1.0%) less than the average 13-week Treasury bill rate for August 1982, adjusted for the effect of required reserves. The 100 basis point differential is approximately equal to the pretax profit margin of large wholesale banks, which operate in a highly competitive environment. (Substituting some alternative short term market rate for the Treasury bill rate here would not substantially alter the estimates in Figure 1.)

Finally, the "fully competitive" rate for small time deposits is 100 basis points below the 2 year government bond rate in August 1982, adjusted for the effect of reserve requirements.

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SELECTED ABSTRACTS 1982

82-1

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by
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The fact that externalities can produce a non-convexity in the social production set limits the application of both Coasian and Pigouvian solutions to the problem of achieving an optimal allocation of land resources. In this paper, we derive conditions on relative land prices which indicate whether external effects are strong enough to introduce a non-convexity into the production set. These conditions were not fulfilled in a sample of single-family and multi-family dwellings in Foster City, California. This does not preclude the possibility that they are fulfilled in cases of more severe external effects.

82-4

SPOT AND FUTURES PRICES AND THE LAW OF ONE PRICE
by
Aris Protopapadakis
and
Hans R. Stoll

The law of one price (LOP) is tested for narrowly defined commodities traded in futures markets in different countries during the period 1973-1980. Although the LOP holds as an average tendency for most of the commodities, there are instances of large riskless arbitrage returns (before transactions costs). Deviations from the LOP tend to be commodity specific rather than due to a common external factor and they tend to be smaller the longer the maturity of the futures contract.

82-7

THE NEUTRALITY OF THE REAL EQUILIBRIUM UNDER ALTERNATIVE FINANCING OF GOVERNMENT EXPENDITURES
by
Simon Benninga
and
Aris Protopapadakis

In this paper we show that the real equilibrium of an economy (excluding cash balances) is independent of government financing policies as long as the present value of taxes paid by each consumer, including the inflation tax, remains fixed. The economy for which the above proposition is true has constant marginal tax rates, has complete markets, and it is characterized by consumers that form expectations rationally under uncertainty. We investigate the restrictions this neutrality proposition imposes on the consumer's demand for money.

82-8

ECONOMIC DISTURBANCES AND EXCHANGE REGIME CHOICE
by
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The choice between fixed and flexible exchange rates is studied using stochastic simulations of a three-country macromodel. Random demand shocks appear in the markets for internationally traded goods and assets.

Increasing the variances of one nation's goods and asset market disturbances increases the attractiveness of fixed rates to that nation's residents. Increasing the variances of the goods (relative to the asset) market disturbances does not significantly affect exchange regime preferences. Finally, it is shown that increasing the correlations of disturbances in any two nations increases the attractiveness of flexible exchange rates to the residents of all nations.

82-11

UNIONS, RELATIVE WAGES, AND ECONOMIC EFFICIENCY
by
Robert H. DeFina

The ability of unions to raise the wages of their members relative to the wages of similar but nonunionized workers is well-documented. This paper examines empirically the implications of that wage differential for resource allocation and economic efficiency. This is accomplished by explicitly solving a numerically specified general equilibrium system with and without the wage differential. Comparison of the two solutions yields the desired information. The findings indicate that the wage premium results in adjustments in prices and quantities of factors and commodities that vary widely across industries. These adjustments are found to carry a small deadweight loss, as measured by the Hicksian equivalent variation.

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