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The Impact of Federal Interest Rate Regulations on the Small Saver: Further Evidence

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ABSTRACT

This paper provides further evidence on the distributional impact of interest rate ceilings on the small saver. Cross-section data from the 1977 *Consumer Credit Survey* was used to estimate the implicit losses imposed on different income classes by government regulations. Our findings generally support earlier studies which found the implicit burden to be regressive among income classes. However, the degree of regressivity showed a marked decrease since 1970. These results may be explained by portfolio adjustments of households and financial innovations in response to deposit rate ceilings and accelerating inflation during the 1970s.

IN A RECENT PAPER in this journal, Clotfelter and Lieberman [5] (hereafter C & L) presented evidence of the distributional impact of rate ceilings on deposits in commercial banks and thrift institutions. Their estimates are based on distributions of households' asset holdings in 1963 and show regressivity in the burden of interest losses caused by deposit rate ceilings over the period from 1968 to 1970.¹ Since 1963, however, households' portfolio compositions may have changed as households and financial markets adapted to higher rates of interest and inflation.² This paper updates C & L's estimates using data on financial asset holdings from the 1977 *Consumer Credit Survey*.³

I. Methodology

The 1977 *Consumer Credit Survey* provides the most recent detailed information on households' financial asset holdings. These data describe the distribution of

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¹ Rate ceilings on deposits also impose an implicit burden on households as well as losses of explicit interest. Small savers holding money market instruments may accept less liquidity or more risk than they would otherwise have chosen in order to gain an increase in explicit interest. The authors are grateful to the referee for suggesting this note.

² The Interest Rate Adjustment Act of 1966 extended deposit rate ceilings to thrift institutions as an element of a policy seeking to regulate deposit flows between banks and thrifts. But small savers have been willing to enter money markets to obtain higher market yields when deposit rate ceilings have been binding (see Mullineaux [17]). In order to stem losses of deposits resulting from such behavior, the minimum noncompetitive bid for Treasury bills was raised from \$1,000 to \$10,000 in 1970. The emergence of money market mutual funds in 1974 provided a means by which small savers could circumvent these restrictions. Money market mutual funds give savers access to market yields on amounts as low as \$500.

³ For description and the basic results of the survey, see Durkin and Elliehausen [6].

asset holdings by income group: this information is necessary in order to estimate the incidence of interest losses. There are, however, several important differences between the 1977 survey and the 1962 and 1963 surveys⁴ used by C & L which preclude exact replication of C & L's analysis.

The 1962 and 1963 surveys used by C & L provided specific dollar amounts, but only the ranges of income and asset holdings, not specific dollar amounts, were available from the 1977 survey. In order to obtain the asset distributions by income groups required for estimating interest losses, it was necessary to convert intervals into dollar values. For bounded intervals, class marks were found by taking the average of upper and lower limits of each class. Open-ended intervals existed only for income and amount in savings accounts. The lower limit of the open interval was used for savings accounts. It is unlikely that the average amount in this class is much higher than the lower limit (\$200,000), and the bias from understating this value is probably quite small, since less than 0.2 percent of respondents with savings accounts reported amounts of \$200,000 or more. The value for the open-ended income interval was chosen on the basis of differences between Census Bureau estimates of average income and the average of incomes reported in the Survey Research Center's *Survey of Consumer Finances* (which collected specific dollar values, and is otherwise similar to the 1977 Survey).⁵

The assumption in this procedure is that the class mark is very close to the actual mean of the values in the class, and that these values are approximately evenly distributed throughout the class. This assumption is most likely to be violated in the highest asset classes where class frequencies are lower. Thus, errors are likely to be greater in higher income groups, but it is difficult to determine the direction of such errors and the consequent bias. Another potential source of bias arises from possible correlation of income with value within asset groups. Within asset groups, lower asset values may be more likely found with lower income families, and higher asset values with higher income families. This procedure would lead to a more even distribution of assets and would tend to reduce the degree of regressivity observed. This bias is likely to be present at least to some extent in the figures for 1977.

C & L grouped households into income deciles. Since decile breakpoints did not occur at class limits in the 1977 survey, exact deciles could not be created. However, by weighting interval averages by their frequency in each decile, decile averages could be estimated (see Table I). This procedure might bias the results to the extent that lower and higher income intervals within asset classes are not independent of income. Interest losses were estimated for both income intervals and decile grouping. Any bias from this source was not detected. Therefore, the estimates of interest losses by deciles are presented in order to facilitate comparison with C & L's overall results.

Respondents to consumer surveys generally tend to understate income and

⁴ See Projector and Weiss [19] and Projector [18].

⁵ Questions about income and asset values were also less detailed in the 1977 Survey. Less detailed questions tend to provide less complete reporting, but there is limited evidence suggesting that very different question formats may provide very similar estimates. See Herriot [9].

Table I
Asset Holdings by Deciles, 1977

Decile	Time Deposits				Savings Deposits				Savings Bonds				Demand Deposits			
	Av. In- come ^a	Av. Hold.	% of Inc.	% of Total Time Dep.	Av. Hold.	% of Inc.	% of Total Svgs. Dep.	Av. Hold.	% of Inc.	% of Total Svgs. Bonds	Av. Hold.	% of Inc.	Av. Hold.	% of Inc.	% of Total De- mand Dep.	
1	2,390	375	15.70	2.01	2,096	87.70	3.31	74	3.10	1.21	410	17.14	3.45			
2	4,793	578	12.06	3.10	1,805	37.66	2.85	412	8.60	6.74	305	6.36	2.57			
3	7,376	929	12.59	4.98	3,879	52.59	6.13	283	3.84	4.63	1,053	14.28	8.88			
4	9,800	2,720	27.76	14.57	6,601	67.36	10.44	220	2.25	3.61	874	8.92	7.37			
5	12,525	1,549	12.37	8.30	5,441	43.44	8.60	449	3.59	7.35	720	5.75	6.07			
6	14,899	2,149	14.42	11.51	5,710	38.32	9.03	404	2.71	6.62	862	5.79	7.27			
7	17,680	1,540	8.71	8.25	5,574	31.53	8.82	699	3.96	11.44	861	4.87	7.26			
8	21,700	1,435	6.61	7.69	5,586	25.74	8.83	1,151	5.31	18.83	1,128	5.20	9.51			
9	27,083	2,387	8.81	12.79	10,416	38.46	16.47	953	3.52	15.58	1,458	5.38	12.29			
10	50,687	5,006	9.88	26.82	16,121	31.81	25.50	1,466	2.89	23.98	4,189	8.26	35.32			

^a Income deciles were derived from 1976 income data. Deposits are for 1977.

Source: 1977 *Consumer Credit Survey*.

asset holdings.⁶ The consequent bias depends on the pattern of response errors and the type of analysis performed.⁷ In order to remove cases in which income was severely underreported, C & L eliminated households with reported income less than 3 percent of net worth, or with savings greater than income. C & L's second filter was not available in the 1977 survey; the 1978 reinterview did not include questions about holdings of financial assets, so changes in holdings could not be determined. The net worth filter, on the other hand, was available, and estimates of interest losses were calculated both with and without the net worth filter. A slightly less regressive pattern of interest losses was obtained when the net worth filter was imposed. This result would be expected if the understatement is constant in absolute terms.⁸ The figures obtained without the net worth filter increase differences among groups and bias estimates toward greater regressivity. This bias would tend to offset the probable bias from using interval data, and thus would result in more conservative estimates of interest losses. For this reason, results obtained without the net worth filter are presented.

The interest losses to savers depend on differences between actual interest rates paid and the interest rates which would have been paid in the absence of rate ceilings. Regression equations estimated by Pyle [20] provide hypothetical market rates for deposits at commercial banks and thrift institutions.⁹ Actual interest rates paid on deposits in commercial banks and thrift institutions can be obtained from the *Savings and Loan Fact Book* [24] (these rates were adjusted to remove large certificates of deposits).

Time deposits and savings deposits in commercial banks are close substitutes for time and savings deposits in thrift institutions. In fact, many consumers are unable to distinguish between deposits in commercial banks and deposits in thrift institutions. Therefore, it is reasonable to assume that banks and thrifts would pay identical interest rates on similar deposit types in an unconstrained, competitive market.¹⁰ Thus, average deposit rates at banks and thrifts would differ only

⁶ Both the 1962 and 1963 surveys and the 1977 Survey define income on a cash basis. Thus, implicit services of homes, durables, and unrealized capital gains, which respondents are likely to overlook, are not requested. Income from interest and dividends is likely to be understated, but respondents generally report other forms of income accurately. With respect to assets, respondents may forget to credit interest or include accounts held by other family members. The degree of understatement for different asset types range from 25 to 50 percent. See [3, 4, 7, 8, and 15].

⁷ See Broida [3], pp. 354-63.

⁸ For other error patterns this bias would not be obtained. A constant percentage understatement would cause no bias, while differences among groups would tend to be understated if the tendency toward understatement increases with income. Additional complexities are introduced if possible error patterns in reports of asset holdings are considered. A constant percentage understatement of asset holdings would not bias results, but progressive understatement of asset holdings would tend to understate differences in asset dollar shares. See Broida [3], pp. 361-63.

⁹ The predicted interest rates provided by Pyle's model appear reasonable when compared to actual interest rates on deposits and other money rates in the market. For example, the average predicted interest rate on all types of deposits in depository institutions during 1977 was 6.56 percent, while U.S. Treasury notes and bonds of maturities ranging between 1 and 7 years yielded an average of 6.69 percent. In contrast, the average interest paid on deposits in all financial institutions during 1977 was 5.98 percent.

¹⁰ This assumption does not hold exactly. Commercial banks offer a greater variety of financial services. Therefore, they may be able to pay lower interest rates on deposits if consumers value the convenience of obtaining all financial services at one institution.

because their proportions of time and savings deposits differ. With this assumption, hypothetical market rates and actual rates for time and savings deposits can be obtained using estimates from Pyle's equations and the actual rates found in the *Savings and Loan Fact Book*. Differences between predicted and actual interest rates for time deposits and savings deposits are presented in Table II.

II. Results

Employing the methods developed by C & L, interest losses and interest loss rates were computed for each income decile. These results are summarized in Table III.

The interest loss estimates for time and savings deposits are not comparable to those found by C & L because of changes in definitions. However, the overall distributional impact can be assessed in the aggregate for each income decile.

In this study, time deposits are defined as certificates of deposits in commercial banks, savings and loan associations, and mutual savings banks. Savings deposits include only passbook savings accounts at the above institutions. These definitions depart from those used by C & L in the construction of their table for the estimated differences between the predicted and actual interest rates (C & L, Table III, p. 207). Their estimated differences for time deposits relate to savings and certificates of deposits held by commercial banks. Similarly, their rate differences for savings deposits were based on all savings and certificates of deposits at thrift institutions. Thus, the estimated differences reported by C & L do not distinguish between time and savings deposits, but rather they relate to the spread between the predicted and actual interest rates at commercial banks and thrift institutions respectively.

In absolute terms, our results show that interest losses generally increase as

Table II
Estimated Differences Between
Predicted and Actual Interest Rates (In
Basis Points)

	1976	1977	1978
Time Deposits ^a	60	61	78
Savings Deposits ^a	17	22	22
Series E Savings Bonds ^b	38	41	50

^a Estimated based on Pyle [20]. See text.

^b The estimates of differences between predicted and actual rates of interest for savings bonds are averages of differences for time and savings deposits. The justification for this procedure is that savings bonds have characteristics of both savings accounts and certificates of deposit. A more reliable estimate is not readily available, and the conclusions on the overall impact of deposit rate ceilings would not be significantly affected if other reasonable estimates were used. Holdings of savings bonds are quite small in comparison to the amounts of time and savings deposits.

Table III
Interest Losses and Loss Rates by Deciles, 1977

Decile	Av. In- come	Interest Losses (millions of dollars)					Interest Loss Rates (percent of income)			
		Time Depos- its	Sav- ings De- posits	Sav- ings Bonds	Total ^a	As a % of To- tal	Time De- posits	Sav- ings De- posits	Sav- ings Bonds	Total ^a
1	2,390	51.79	29.06	3.70	84.55	2.25	.29	.16	.02	.48
2	4,793	79.77	25.03	20.57	125.37	3.34	.22	.07	.06	.35
3	7,376	128.22	53.79	14.12	196.13	5.22	.23	.10	.03	.36
4	9,800	375.53	91.53	11.00	478.06	12.72	.52	.13	.01	.66
5	12,525	213.88	75.45	22.43	311.75	8.29	.23	.08	.02	.34
6	14,899	296.66	79.18	20.18	396.01	10.53	.27	.07	.02	.36
7	17,680	212.59	77.29	34.89	324.78	8.64	.16	.06	.03	.25
8	21,700	198.08	77.46	57.45	332.99	8.86	.12	.05	.04	.21
9	27,083	329.52	144.44	47.54	521.50	13.87	.16	.07	.02	.26
10	50,687	691.15	223.55	73.16	987.86	26.28	.18	.06	.02	.26
Totals ^a		2,577.19	876.78	305.04	3,759.00	100.00				
Mean	16,893									

^a Totals may not add because of rounding.

average income rises. The first income decile has the smallest loss of \$84.55 million or 2.25 percent of the total, whereas the highest burden is borne by the tenth decile which incurred \$987.86 million in interest losses, or 26.28 percent of the total. This supports C & L's findings in which the tenth decile's burden was 25.8 percent of the total loss compared to 5.3 percent for the first decile.

When measured in terms of interest loss rates, we found less regressivity than originally reported by C & L. The highest loss rate of .66 of 1 percent of average income was absorbed by the fourth decile, while the smallest loss rate of .21 percent fell in the eighth decile. This contrasts to C & L's reported loss rates of 1.491 and .161 percent for the first decile (highest) and the seventh decile (lowest) respectively.

Further comparisons between the results of this study and the earlier C & L paper can be made by measuring the degree of regressivity in 1970 and 1977. The ratio of average loss rates in the lower five deciles to the average loss rates in the upper five deciles was used to illustrate the degree of regressivity. The ratio was found to be 57 percent higher in 1970 than in 1977. Moreover, the ratio of the highest to the lowest loss rate was 195 percent higher in 1970 than in 1977. These large differences suggest that regressivity may have declined in recent years even though some bias toward equality may exist in 1977 because of the use of interval data.¹¹

III. Conclusions

The finding that the impact of deposit rate ceilings may have been less regressive in 1977 than in 1970 may be explained in part by the failure of consumers to

¹¹ See discussion in Section I.

recognize the full extent of inflation in the early 1970s, and their subsequent adjustment to an altered economic environment. Throughout the 1950s and 1960s, consumers were aware of continuous but slow and gradual increases in prices.¹² They learned that creeping inflation would not destroy the value of their savings and that thrift would continue to be beneficial and contribute to security. Deposits in commercial banks represented the most common and popular form of saving. Deposits were viewed as safe and liquid asset forms, and the receipt of interest was believed to compensate to a large extent for the loss of purchasing power. Thus, when consumers expressed concern about inflation in 1970, they responded to inflation-induced uncertainty as they had in the past: by adding to their time and savings deposits.¹³ Expectations and behavior in 1970 were strongly influenced by experiences with creeping inflation during the two previous decades.¹⁴

Under the influence of strong stimuli, such as high interest rates and rapid inflation in the early 1970s, expectations and behavior change.¹⁵ As consumers learned that price increases were more rapid than in the past, they sought assets which were protected from inflation. But safe and highly liquid assets were not generally available to small savers. The minimum noncompetitive bid for Treasury bills, a money market security frequently held by households, was raised in early 1970, and deposit rate ceilings were revised only after rising market interest rates had resulted in severe declines in the growth of deposits.¹⁶

Accelerating inflation induced households to reallocate their savings. Kane [11] found that small savers substituted leveraged investments in real estate (and presumably also in durables) for financial assets, while large savers turned to negotiable certificates of deposit and marketable securities. This pattern of portfolio responses would tend to reduce holdings of deposits, particularly in lower income deciles, and thus decrease the implicit interest losses to these households. However, this may not have reduced the burden of interest regulations since the resulting portfolios were riskier than earlier portfolios.

Financial innovation may have mitigated, to some extent, the impact of deposit rate ceilings in 1977. It was to the advantage of savers to find means of avoiding the burden of interest rate regulations, and profitable opportunities were created for individuals who were willing to provide ways of avoiding the regulation. As Kane forcefully argued, "Faced with . . . price controls . . . affected parties can be expected to act to protect their economic interests: to probe opportunities to get around the controls or even to turn them to their net advantage."¹⁷ Moreover,

¹² This discussion is based on Katona [13], Chapter 9. See also [12].

¹³ Although the beginning of 1970 saw peak interest rates and disintermediation, deposits in banks and thrift institutions grew rapidly through most of the year. See McKelvey [16], pp. 28 ff.

¹⁴ For example, no more than 15 percent of respondents to consumer surveys expected price increases of more than 5 percent during 1969 and 1970 even though prices increased by nearly 6 percent. Strumpel et al. [21], p. 185.

¹⁵ There is some evidence that such change did occur by 1973. Katona reported that in the summer of 1973 answers to a question about whether inflation hurt much, a little, or not at all differed greatly from the answers received in 1969 or 1970. More than 35 percent said that inflation hurt them very much (compared to 14 percent in 1969–70) and only 3 percent said that inflation hurt then not at all (17 percent in 1969–70). [13], p. 148.

¹⁶ See McKelvey [16], pp. 28 ff.

¹⁷ Kane [10], p. 57.

the passage of time also tends to provide for greater avoidance opportunities and allows the knowledge of these opportunities to be spread among the affected parties. Thus, the avoidance of government regulations and the inability or unwillingness of other financial intermediaries to offer savers safe and liquid assets providing market yields, may have contributed to the growth of money market mutual funds after 1974.

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