


NEW ENGLAND BUSINESS REVIEW

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Student Loan Programs for Higher Education — Part 2

Expansion of the Federal program for student loans depends on the cooperation of private financial institutions. Their participation to date has been limited, largely because of uncertainty about profits. A test for profitability developed for this study shows most such loans generate at least some profit, although losses are not uncommon. Current legislative proposals are slated to improve the returns on these loans.

Consumer Spending Boosts Economy . . .

NEW ENGLAND BUSINESS IN THE FIRST HALF OF 1968

The region's economy has continued to advance though at a somewhat slower pace than the Nation's. Prospects are good for continued improvement.

NEW ENGLAND BUSINESS REVIEW

Student Loan Programs for Higher Education . . . Part 2

by J. Philip Hinson

PPRIVATE financial institutions play a crucial role in the expansion of the student loan program established by the Federal Higher Education Act of 1965 (HEA). The success and growth of the plan are dependent both on the number of participating lenders and on the amount each is willing to lend. An examination of lender participation to date, conducted by this Bank, shows a wide variation according to size and type of institution, and from one area to another. In addition, institutions that specialize in consumer instalment business appear more willing to extend student loans than do institutions emphasizing other aspects of banking. Yet, while lender support is critical, the design and operation of the HEA program pose many problems for participating institutions. Among these are the low profitability of the loans as well as the public resentment created when borrowers are turned down.

In Part 1 of this article, the development and mechanics of the guaranteed student loan program established by the Federal Higher Education Act of 1965 (HEA) were described. Analysis of some aspects of the Act showed that in only 2 years of operation the program has expanded rapidly to serve students from nearly all income groups. Shortages of funds, however, have led many lenders to devise methods for allocating their loans in such a way as to exclude a significant group of the most needy borrowers.

Lender Participation

The U. S. Office of Education has projected a tenfold increase in HEA loan demand by 1973. Clearly, expansion on this scale would require participation by a large proportion of all financial institutions with each willing to commit funds to student loans as the need arises.

To find out how extensively the lenders in the region are committed to the program, this Bank surveyed 300 New England financial institutions.¹ Of those polled, 273 responded and their replies were compared with national data. The most comparable source of nationwide data is a study made by the College Entrance Examination Board (CEEB) in the fall of 1967.

Perhaps the most obvious measure of lender activity in different geographical areas is the percentage of financial institutions of various types that are taking part in the program. As Table I shows, New England mutual savings banks and savings and loan associations appear to be participating at or slightly below the rate of their counterpart institutions across the

¹ Details of the sample composition are set out in a footnote to Table I.

Table I
Institutions Participating in the Guaranteed Student Loan Program (Percent)
New England* and the United States

	Commercial Banks	Mutual Savings Banks	Savings and Loan Associations	All
Conn.	93%	65%	80%	78%
Maine	100	40	0	41
Mass.	70	43	6	39
N. H.	88	71	0	63
R. I.	100	67	0	64
Vt.	50	‡	‡	50
New England	80	50	14	50
U. S.	66	56	16	37

‡Indicates inadequate sampling coverage.

*Based on a sample of 300 New England financial institutions allocated as follows: 90 commercial banks, 90 mutual savings banks, 90 savings and loan associations, and 30 credit unions. Within each group institutions were chosen randomly with the exception that the 20 largest commercial banks and the 10 largest mutuals and savings and loans were intentionally included because of their significance in overall New England lending volume. Credit unions are exempted from the discussion for the reason that sample responses obtained in the Boston survey were too small to permit meaningful statistical analysis.

Source: New England data are from the Federal Reserve Bank of Boston, Survey of New England Financial Institutions on the Guaranteed Student Loan Program, conducted February 1968. United States data are from the College Entrance Examination Board, *A Study of Federal Student Loan Programs* and are based on a survey conducted in October 1967.

country. However, 80 percent of the commercial banks in the region are taking part, a proportion significantly greater than the 66 percent figure for this group nationwide.

Why commercial banks have the best participation record both nationally and regionally is not entirely clear, although several explanations are possible. Perhaps the most likely reason is that the traditional leadership commercial banks have maintained in the consumer lending field has established them in the public mind as the most obvious source of student loans. It is also possible that commercial banks, mindful of customer relationships, have been less willing than other lenders to refuse loan requests from established customers. In addition commercial banks may have been more liquid during the period of tight money

that has characterized the first 2 years of HEA and have therefore been better able to accommodate low profit loans.

Another aspect of lender participation is the rate at which lenders have been joining the program. The survey carried out by this Bank indicates that this rate has declined over time. More than 40 percent of all New England lenders joined the HEA plan at its inception, with 7 percent entering in the 8-month period after November 1966 and another 2 percent entering in the last 8-month period. Recently, regional mutual savings banks have shown the highest rate of entry — 6 percent in the last 8 months. The problem of attrition has been negligible; only four institutions — all commercial banks — have left the program, probably because of low profitability.

Table II
Participation Rates, Number, and Amount of Guaranteed Student Loans
In Relation to Deposits for New England Institutions
by Type of Institution and Deposit Size

	Participation Rate (%)	No. of Guar. Student Loans per \$1 Million in Deposits	Amount of Guar. Student Loans as a Percent of Deposits
Commercial Banks, deposits less than \$100 mill.	78	5	.46%
Commercial Banks, deposits of \$100 mill. or more	<u>85</u>	<u>3</u>	<u>.27</u>
All Commercial Banks	80	3	.29
Mutual Savings Banks, deposits less than \$100 mill.	41	1	.09%
Mutual Savings Banks, deposits of \$100 mill. or more	<u>83</u>	<u>.6</u>	<u>.05</u>
All Mutual Savings Banks	50	.7	.06
Saving and Loan Assocs., deposits less than \$100 mill.	11	3	.34%
Saving and Loan Assocs., deposits of \$100 mill. or more	<u>60</u>	<u>.5</u>	<u>.05</u>
All Saving and Loan Assocs.	14	1	.14
All Institutions, deposits less than \$100 mill.	42	3	.31%
All Institutions, deposits of \$100 mill. or more	<u>78</u>	<u>2</u>	<u>.20</u>
All Institutions	50	2	.22

Source: Federal Reserve Bank of Boston, Survey of New England Financial Institutions on the Guaranteed Student Loan Program, conducted February 1968.

Having chosen to participate, lenders must then determine the amount to commit to these loans. This Bank's questionnaire asked what criteria management used in making this decision. Of those responding, 8 percent have established a maximum dollar amount. Another 8 percent said their limit was set in terms of a certain percentage of deposits, assets, or total instalment credit, the most common being 1 percent of total deposits. Perhaps surprisingly, 84 percent said that so far they have used no guidelines but simply tried to meet demand as it arose. A large number of these lenders, however, have imposed eligibility conditions to restrict demand and many more are considering their imposition.

The deposit size of lending institutions appears to have a definite impact on their participation rates in the program both nationally and regionally. This finding was confirmed by the CEEB study which showed that, nationwide, institutions of all types with over \$100 million in deposits have a collective participation rate of 75 percent as compared with a 58 percent rate for those under \$100 million. A similar pattern emerges from this Bank's survey of New England lenders, as Table II shows. Of the larger regional lenders polled, 78 percent were participating as opposed to only 42 percent of the smaller institutions.

Yet, while a greater percent of large lenders participate, small lenders tend to commit a

relatively greater share of their funds to the program. This tendency at least partially offsets their lower participation rate. Respondents to this Bank's survey were classified by type of institution and deposit size, and then for each group the number of loans and the total loan amounts were considered relative to deposit size. The results, shown in Table II, clearly indicate that small commercial banks and small savings and loan associations make the greatest effort in relation to their loanable funds as measured by their deposits. Without exception, the small institutions outperform the large ones of the same type both in terms of numbers and dollar amounts of loans. Furthermore, the difference between the large and small groups is substantial. In terms of amounts loaned, the small institutions among the commercial banks and savings and loan associations are participating at a rate 7 or 8 times greater than that of large S and L's and mutual savings banks.

Additional support for this general pattern emerged from statistical analysis undertaken by this Bank in which the deposit size of the lender showed a significantly negative relationship to the level of guaranteed student loan activity relative to deposits. The only other relationship which showed as consistently significant was the positive association between the lender's emphasis on consumer credit and the proportion of their deposits allocated to student loans.

The conclusions, then, are mixed as regards lenders' roles in the regional student loan program. While a much higher percentage of the large institutions are involved in the program, those small lenders that have entered are demonstrating a much higher degree of

effort. Clearly, both aspects — the number of participating lenders and the amount each is willing to lend — are crucial if the guaranteed student loan program is to grow at the rate that student demand would warrant and that Congress intends. Yet it is questionable whether such lender cooperation can reasonably be expected, given the present form of the program.

Lender Problems

Among the more enthusiastic backers of the HEA student loan plan upon its passage was the American Bankers Association. Through presentations at regional bankers' meetings, distribution of printed matter and other means, the ABA urged all members to participate as lenders. It stressed such factors as the chance to replace a Federal program with private action, the opportunities for commercial bankers to render a valuable community service, and achieve good public relations while cultivating business ties with the college youth who will become tomorrow's leaders.

Two years of experience have cast a chill over these optimistic expectations. It was never expected, of course, that these loans would prove particularly profitable to the lender, given the statutory 6 percent maximum return on them. Yet lenders now feel that the average return on funds committed to this program has proved even lower than anticipated, approaching zero or negative levels under some circumstances. This low profitability has been attributed to the high cost of processing and servicing such loans as well as to the unfortunate coincidence of the program with a period of very tight money conditions which have increased the costs of loanable funds to lenders.

Table III
Impressions of Borrower Misuse and Defaults on Student Loans
New England Financial Institutions

Impressions of Borrower Misuse Under HEA*	Percent of Respondents
Misuse negligible	75%
Misuse moderate	19
Misuse substantial	4
No answer	2
Total	<u>100%</u>
Defaulting on Student Loans Compared to Consumer Loans**	Percent of Respondents
Better than consumer loans	35%
About the same as consumer loans	31
Worse than consumer loans	6
No experience with student loans	28
No answer	1
Total	<u>101%</u>

*Participants were asked to answer the question, "What are your impressions concerning the degree of borrower misuse (i.e. unnecessary borrowing by families who could easily reduce their consumption or obtain funds by some other means, or the misuse of low cost funds for investment at a higher return)?"

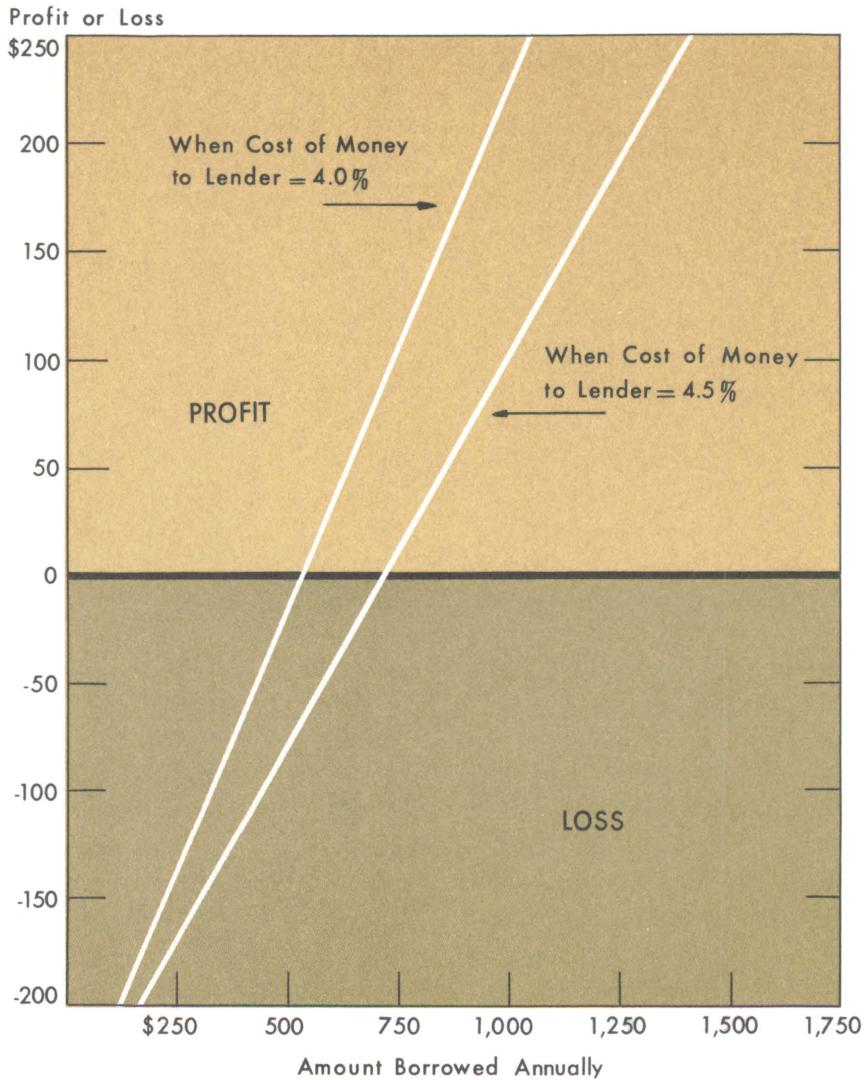
**The second question read, "How would you compare your experience with default on and collection of student loans with your experience with consumer loans? Please base your answer on past experience you have had with any type of student loan programs, whether state, Federal or private."

Source: Federal Reserve Bank of Boston, Survey of New England Financial Institutions on the Guaranteed Student Loan Program, conducted February 1968.

Further, the hopes for garnering beneficial community public relations have backfired in some cases. Lenders report that the public tends to envisage this as a "Federal Program," which should benefit any tax paying citizen who chooses to apply. As a result applicants resent being turned away by a private firm which is unwilling to lend under the program, or to lend in the amounts required to satisfy all requests. And, ironically, it appears that in many communities those lenders which choose to participate gain more ill-will than those which stay out of the program entirely.

Lenders have expressed other reservations about participating as well. There has been some fear that borrowers would misuse the plan by borrowing these subsidized funds in amounts larger than actually needed or for non-educational purposes. Further, many financial officers have expressed concern over the possibility of a high default rate on these loans. This is aggravated by the terms of the Federal Act which require that the loan be made directly to the student as opposed to his parents and do not permit the lender to secure a co-maker on the debt.

Graph I
PROFIT OR LOSS TO THE LENDER
IN RELATION TO THE AMOUNT BORROWED ANNUALLY



CONDITIONS

- Interest paid on student loan = 6%.
- Number of times a student borrows = 4.
- Total loan life in years = 9.
- Acquisition cost (administrative cost of writing or converting loan to repayment status) = \$25.
- Service cost to the lender per billing = \$1.35.
- Grace period in months = 12.
- Number of billings to the student per year = 12.

In an attempt to establish whether these objections were valid, the survey conducted by this Bank specifically included questions on default and misuse — matters on which most lenders have accurate records or, at the minimum, a reliable “feel.” The results obtained are set out in Table III. While these figures apply only to the New England region they are gratifying and indicate that lender concern on both these counts has been overstated.

The complaint that these loans are unprofitable is more difficult to evaluate. Because so many factors affect profitability and because in many instances the relevant data and techniques are unavailable, a survey could not be used to investigate this problem. For this reason, a profitability equation was developed for the present study. This equation provides a generalized format that permits calculation of the profitability of any specific loan, since each variable which affects the total profit or loss may be changed to fit the given situation. Examples of such variables are the cost of money, the number of times the student borrows, the amount the student borrows, and the number of years taken for repayment. The equation itself and the complete list of variables appear in the Technical Note on page 14.

It should be noted here that the equation yields the simple dollar amount of profit or loss *over the entire life of the loan*. It thus employs a breakeven concept of profit calculating the difference between total dollar income from the loan and total costs including the cost of funds. It does *not* solve for profit in the pure economic sense which would entail consideration of opportunity costs and other factors, nor does it show the true rate of

return to the lender which would be expressed as a percentage and would entail discounting future amounts to yield present values.

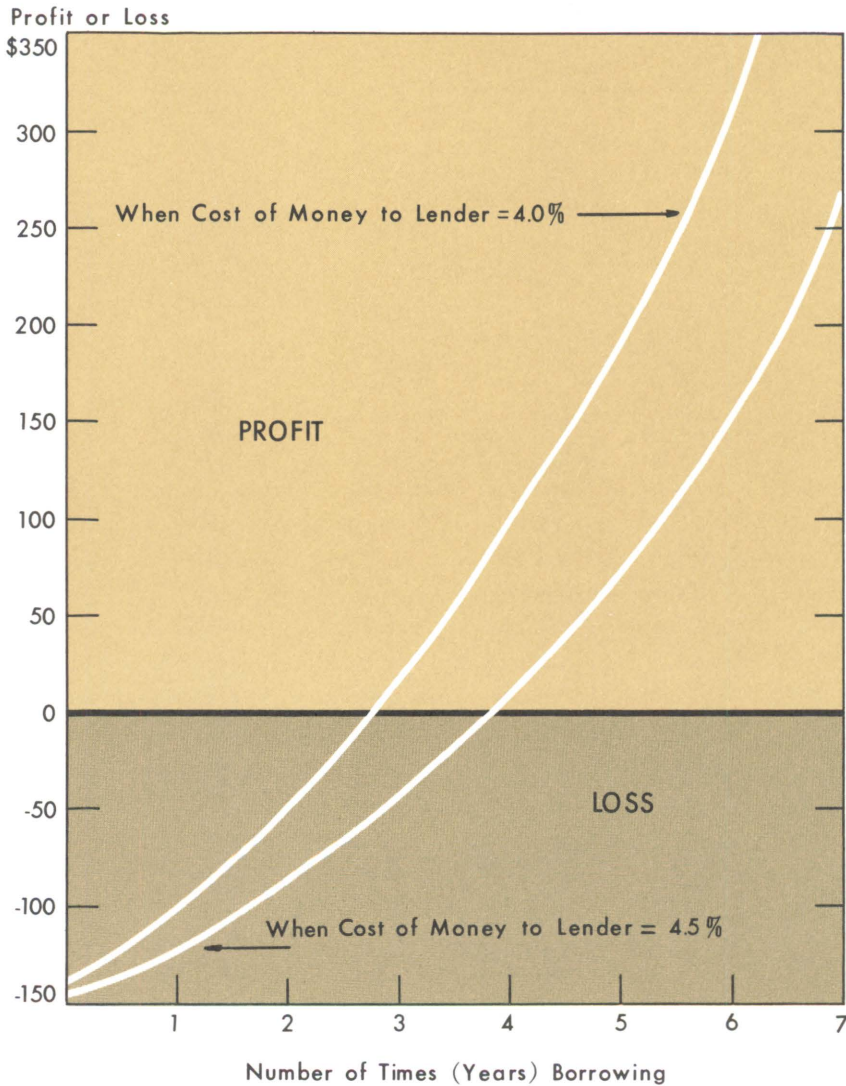
Results of the Equation

The equation was solved for a large number of variable combinations, and the results show that a simple and unequivocal statement on loan profitability is not possible. Using plausible values for the various characteristics of these loans, lenders are seen to make some positive profit in the majority of cases. In fairness, however, it must be stressed that in a substantial range of cases the lender fails to break even, or receives only a negligible net gain — for example, \$7.00 total gain on a 10-year loan.

As might be expected, the larger the total amount loaned, the more likely the loan is to be profitable. As an example of one of the many possible results of using the formula, Graph I shows, for the case of a student borrowing in 4 successive years, the relationship between the amount borrowed annually and lender profits, other factors being held constant. The alternative method of expanding the total amount borrowed is to assume the student borrows the same amount annually and observe the impact on profits as he borrows for different numbers of successive years. This is shown in Graph II.

In the controversy which has arisen since the passage of the HEA perhaps the one factor most frequently cited as a determinant of profitability has been the cost of money to lenders — that is, their net cost of raising loanable funds. Widely diverse views have emerged on this in recent testimony before Congress, with estimates ranging from $1\frac{1}{2}$

Graph II
PROFIT OR LOSS TO THE LENDER IN RELATION TO
THE NUMBER OF TIMES A STUDENT BORROWS



CONDITIONS

- Interest paid on student loan = 6%.
- Amount borrowed annually = \$750.
- Number of repayment years = 5.
- Acquisition cost (administrative cost of writing or converting loan to repayment status) = \$25.
- Service cost to the lender per billing = \$1.35.
- Grace period in months = 12.
- Number of billings to the student per year = 12.

Table IV
Possible Changes in HEA to Increase Participation:
Lender Assessment

Inducements Mentioned	By Lenders Participating (Percent)*	By Lenders Not Participating (Percent)*
Less red tape	42%	29%
Federal fees for each loan	47	19
Other**	35	29
No possible inducement	6	14
No answer	6	36

*Respondents were allowed to mention more than one change on this question with the result that these percentages add to more than 100.

**Under this category the desirability of a higher interest rate and of a co-maker were frequently mentioned.

Source: Federal Reserve Bank of Boston, Survey of New England Financial Institutions on the Guaranteed Student Loan Program, conducted February 1968.

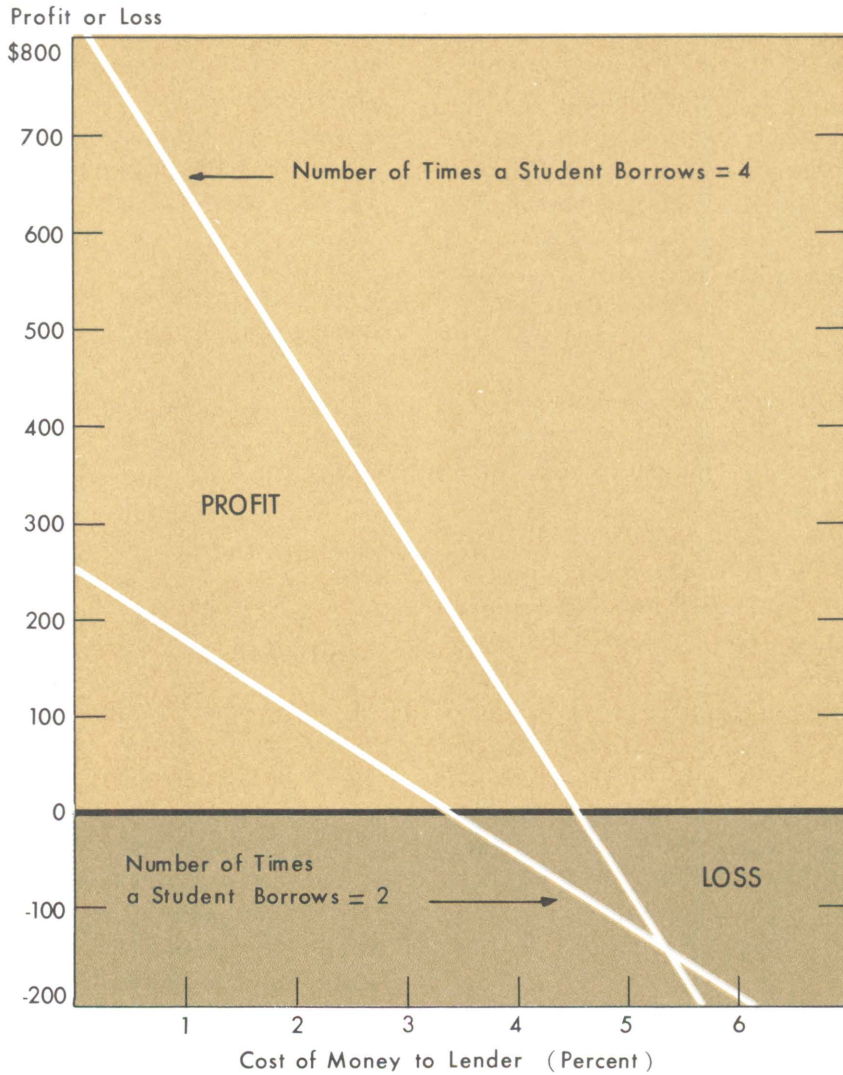
percent to $5\frac{1}{2}$ percent. Functional cost data collected by the Federal Reserve System provide the most reliable information on this subject, and indicate that the *average* cost of the pool of funds available to the lender (raised through demand deposits, time deposits and net capital) ranges from $2\frac{1}{2}$ percent to $3\frac{1}{4}$ percent. On the other hand, if a lender has to raise additional funds to extend student loans, he must typically resort to time deposits or similar instruments. His *marginal* cost of funds is thus much higher, and would vary from $4\frac{1}{4}$ percent to $6\frac{1}{2}$ percent over time. While it is not the purpose of this article to suggest any single figure as the proper one to use, the loan equation does permit an analysis of the general relationship between the cost of funds and loan profitability. Graph III shows this in two typical cases.

The actual profitability of these loans may be a misplaced concern, however. The point is that lenders commonly *believe* the loans are unprofitable and it is this belief that constitutes

the major barrier to greater lender participation. This attitude was clearly revealed in the results of this Bank's survey. Of the participating New England lenders, 47 percent indicated that they would devote appreciably larger amounts to the program if they received a Federal fee for each loan written. An additional 42 percent indicated a willingness to lend substantially more if less red tape were involved. In an indirect way, of course, this answer once again indicates a concern about profitability. A more complete breakdown of lender responses on this issue is shown in Table IV.

Concern over this attitude among lenders led the Administration earlier this year to propose legislation which would increase the return on these loans. Subsequent hearings in Congress have produced two alternate proposals, one of which seems likely to become law this session. The original proposal, endorsed by the Administration as well as several private groups, was to pay lenders a flat fee

Graph III
PROFIT OR LOSS TO THE LENDER
IN RELATION TO THE COST OF MONEY



CONDITIONS

Interest paid on student loan = 6%.
 Amount borrowed annually = \$750.
 Acquisition cost (administrative cost of writing or converting loan to repayment status) = \$25.
 Service cost to the lender per billing = \$1.35.
 Grace period in months = 12.
 Number of billings to the student per year = 12.
 Number of repayment years = 5.

for each loan written. This fee, or subsidy, would range from \$25 to \$35, with the exact amount being determined annually by the Secretary of Health, Education and Welfare, in light of money market conditions. The alternative would be to raise the statutory interest ceiling by 1 percent, allowing lenders to charge 7 percent. This proposal has the disadvantage that it would conflict with usury laws in some states. It would therefore require either special congressional action to pre-empt these restrictions where they exist or necessitate direct Federal payments to lenders in such states to bring their return up to 7 percent.

While the American Bankers Association has stated its willingness to accept either version, the 7 percent proposal seems to have more support, and the question arises as to which of the two plans would provide more help to lenders. The equation developed for this study provides a means for comparing the alternatives. In the case of a typical loan, such as when a student borrows \$800 per year for 4 successive years and then repays the loan over a 5-year period beyond graduation, the lender is slightly better off with the 1 percent increase in rate of return than with the fee. In general, as the amount borrowed decreases, or the repayment period is shortened, the fee becomes more beneficial to the lender than the 7 percent return, and vice versa.

The enactment of either of these proposals will serve to make the great majority of guaranteed loans profitable to the lender in the break-even sense of that term. Only the occasional loans written for unusually small amounts or for a very short period of time would entail lender losses, and these would be minor. If expansion of the HEA program can

be said to have been thwarted by any single factor, inadequate lender participation would probably have to be named. Thus, the favorable prospects for passage of this legislation suggest that this troublesome aspect of the program will soon be set right. From that point on the adequacy of the program will hinge upon the ability and willingness of individual lenders to look beyond conventional business concerns to broader social benefits and to commit sizable amounts to a program of this nature.

Some Broader Issues

This article has largely been concerned with the origins and operations of student loan plans to date, ignoring some of the broader issues involved in governmental aid to education. There is little at issue regarding the justification for public subsidization of higher education. The economic and social benefits of an educated citizenry are widely recognized as transcending the direct gains to those who acquire learning.

It is when consideration is given to the proper long-run approach to promoting higher education that questions begin to arise. Aid may take a variety of forms, being directed toward colleges, toward specific fields of study, or to students themselves. Within the last category alone, the HEA of '65 may be seen as but one alternative, other approaches including direct government loans, public scholarships on the basis of ability, and grants on the basis of need. In assessing these alternatives there are a number of criteria to consider.

Whatever the program, its structure and legislative authority should be such as to assure funding over time that is both adequate and stable. The earlier parts of this article have, of

course, faulted the program on the issue of adequacy. Responsibility for this must be shared among the Federal government, the individual states, and the community of financial institutions. Further, it seems likely that private lenders will contribute to the instability of available funds over time as they pass through periods of varying liquidity and monetary tightness.

Attention should additionally be given to the equity of a program in the allocation of its benefits as well as the distribution of the real costs associated with it. Part I of this article stressed that the vagueness of the Act on the matter of eligibility has led to the development of a variety of informal allocative practices when, for purposes of social equity, some degree of uniform central direction would be desirable.

Concerning the cost incidence of HEA, it should be pointed out that the bulk of the real costs of the plan are borne by the student borrowers themselves, as they must repay the loan principal even though the Federal Government often pays the major portion of the interest charges. (To the extent that some loans do not yield a break-even return, lenders themselves are subsidizing the program.) In the interim before full repayment, however, the economic cost of the program is largely reflected in reduced availability of funds for capital development, as student borrowing absorbs funds which could otherwise be used for private investment. Such a shift of investment funds can be considered appropriate as the educational process itself represents the creation of a kind of social capital.

On the criteria of ease and efficiency of administration, the HEA clearly falls short of other plans on one count because it involves

direction from the Federal level as well as from the individual states and thousands of separate private lenders. This disadvantage, however, is offset by placing the ultimate discretion on loans at the community level, permitting the student and his family to discuss loan amounts and terms personally with local people.

Further, there is an advantage to direct loan plans in that they give students an amount of freedom not found in other forms of educational aid. Once a student receives a loan, he has generalized purchasing power to bid for admission to any school that appeals to him on academic grounds. This is not true of student assistance which takes the form of appropriations to state universities. Further, direct student loans do not act to influence a student's choice of academic fields as does assistance given in the form of fellowships for study in certain disciplines. And when public aid is extended directly to students as opposed to institutions, it promotes academic freedom by leaving individual colleges less subject to political interference.

In terms of the impact on students themselves, direct loan programs such as the HEA plan have mixed effects. A student who obtains such a loan is incurring direct personal costs in the form of debt but is also receiving an element of subsidy in the form of the interest benefits. This combination is generally desirable. The direct costs discourage misuse of the program, while the subsidy encourages college attendance and partially compensates the student for his greater social value as an educated citizen. Yet the student who relies on such borrowing to finance his education can find himself with a heavy debt burden at the same time he may be facing the expenses of marrying and establishing a home. This aspect

TECHNICAL NOTE*

Purpose of the Analysis

While aggregate data collected over recent years can identify the typical guaranteed student loan as having an average life of so many years, a total amount borrowed of so many dollars, etc., the fact remains that in the real world a given student loan can assume any one of an almost infinite variety of characteristics. In fact, there would appear to be a minimum of twelve different variables involved in any given loan, and each of these has its own impact on the overall profit experience of the lender making that loan.

With such a large number of possible cases it becomes desirable to have a generalized format for the analysis of the profitability of these loans. The answer for any specific case that might be of interest can then be easily derived. Such a generalized equation also has the advantage that the impact of any one variable on profit or loss can be isolated, the other variables being held constant.

The equation set out below is intended to provide such a generalized approach to determining the profit (or lack of it) on a student loan. More specifically, it yields the dollar amount of the total profit or loss over the life of the loan. It thus employs a "break-even" concept of profit. It should be noted, however, that the variables which reflect costs to the lender can easily be defined to include not only direct costs, but overhead and capital costs as well so that zero profits represent a true break-even point.

Variables and Assumptions

The variables identified as describing any given student loan and the symbols used to represent them are listed below. Those cases in which the variables can assume only restricted values so as to represent accurately the terms of the HEA are noted in parentheses.

- ϕ = direct dollar loss or gain to lender over the life of the loan.
- a = amount borrowed per annum.
- n = number of years borrowed.
- R = amount repaid annually.
- B = total amount borrowed (= n · a).
- T = total loan life expressed in number of years, and excluding any grace period.
- t = any specific year, where 0 . . . t . . . T.
- $(T - n) = \frac{na}{R} = \frac{B}{R}$ = number of years beyond leaving school required to repay the loan.
- c = cost of money expressed as a percent per annum.
- r = interest charged on the principal, expressed as a percent per annum. (currently 6% maximum)
- A = acquisition and/or conversion cost, i.e. cost to the lender of writing a loan or converting it to a repayment basis.
- S = average cost to the lender of making one billing.
- x = number of months grace period. (Must take values of either 9 or 12.)
- π = number of billings to borrower per year. (Must take values of either 4 or 12.)
- F = Federal fee paid per acquisition and/or conversion.

To permit simplification in the final equation, it is assumed that for any given student borrower the variable "a" is constant during his borrowing years, R is constant during his repayment years, and $\frac{B}{R}$ will produce an even integer.

The Equation

A given loan will, according to its terms, generate a unique pattern of yearly receipts and costs stretching out over its life. In any given year the difference between the two defines the net dollar revenue to the lender and this figure, summed over the life of the loan, yields ϕ . It should be noted that since values are not discounted, the specific time pattern of yearly net dollar revenues does not matter as only their sum is considered.

The table below illustrates a typical pattern of amounts outstanding, receipts, and costs as they are generated by one of these loans. While this example is predicated on certain specific assumptions (\$750 borrowed each year for 4 years with \$500 repaid per year for 6 years, etc.), the general pattern holds for any combination of assumptions. An equation which will replicate the appropriate pattern for any set of assumptions is:

$$\phi = (r - c) \left[\sum_{t=1}^n ta + \frac{x}{12} B + \sum_{t=n+1}^T \left(\frac{R}{2} \frac{(\pi + 1)}{\pi} - R(t - T) \right) \right] \dots$$

$$\dots - \left[A(n + 1) + S \left(T(\pi + 4) - n\pi + \frac{x}{3} \right) \right] + F(n + 1)$$

Since ordinary algebraic manipulation is not easily performed on summation operators, the formula for the sum of an arithmetic series can be used to rewrite these terms. The equation then becomes:

$$\phi = (r - c) \left[\frac{a(n + n^2)}{2} + \frac{x B}{12} + (T - n) \left(\frac{R}{2} \right) \left(\frac{1}{\pi} - n + T \right) \right] \dots$$

$$\dots - \left[A(n + 1) + S \left(T(\pi + 4) - n\pi + \frac{x}{3} \right) \right] + F(n + 1)$$

Any combination of values can be assigned to these variables which seems appropriate, providing only that consistency is shown in the cases where variables are interdependent (e.g., $(n \cdot a) \equiv B, \frac{B}{R} \equiv (T - n)$, etc.)

TECHNICAL NOTE (Continued)

TYPICAL LOAN PATTERN

Year	Average Amount Outstanding	Interest Rec'd. less Cost of Funds	Acquisition and Billing Costs	Net dollar revenue	
Borrowing Years	1	\$ 750.00	\$ 15.00	\$ 34	\$ -19.00
	2	1,500.00	30.00	34	-4.00
	3	2,250.00	45.00	34	11.00
	4	3,000.00	60.00	34	26.00
Grace Year	5	3,000.00	60.00	4	56.00
	6	2,770.82	55.42	46	9.42
Repayment Years	7	2,270.78	45.42	16	29.42
	8	1,770.74	35.41	16	19.41
	9	1,270.70	25.41	16	9.41
	10	770.66	15.41	16	-0.59
		270.62	5.41	16	-10.59
	<u>\$19,624.32</u>	<u>\$392.48</u>	<u>\$266</u>	<u>\$ 126.48 = ϕ</u>	

Assumptions:

n = 4 (years)	T = 10 (years)	r = .06	π = 12 (months)
a = \$750.00	R = \$500.00	c = .04	S = \$1.00
B = \$3,000.00	F = 0	x = 12 (months)	A = \$30.00

In the above case it is assumed that the borrower pays the initial insurance fee. It is also assumed that during the borrowing years the lender bills the government quarterly for interest, whereas during the repayment years the lender must make 16 annual billings (4 to the government and 12 to the student).

*The author wishes to acknowledge the helpful comments on the equation provided by Steven J. Weiss and Jane Little of this Bank.

of the plan has caused concern, particularly as it tends to operate regressively, inasmuch as the student from a family of moderate means must borrow more than a wealthy one to achieve an equivalent education. Further, the existence of fixed debt obligations may discourage some students from entering low-paying, but otherwise socially worthwhile, careers. Various plans have been proposed that would meet this problem by linking the amount to be repaid with current income after graduation.

Perhaps the most striking feature of the objections to the HEA program raised in the preceding paragraphs is that they could largely be eliminated with relatively straightforward legislative and administrative changes. There is, in fact, currently much discussion of

amending the program among lenders, state officials and others. Given the willingness of Congress to make changes in the Act in the current session, prospects seem good for further reforms in the reasonably near future.

In terms of policy implications, then, the findings of this article indicate that it would be a mistake to move quickly toward reliance upon the HEA program as the sole national student loan plan. In the next several years, the HEA is likely to grow and provide valuable financial aid to ever larger numbers of American families. But until such time as it achieves its full potential, the retention of supplementary loan or grant plans — especially those which are aimed solely at the most needy among us — would seem to be mandatory.

Consumer Spending Boosts Economy

NEW ENGLAND BUSINESS IN THE FIRST HALF OF 1968

by Edwin F. Estle

NEW ENGLAND'S economy, bolstered by a rise in consumer spending, continued the advance in the first half of this year that was evident in the second half of 1967. In spite of a buffeting from many quarters — for example, floods in March and labor disputes throughout the period — employment and production registered some increase. Construction activity hammered out a sizeable advance, with new building contracts reaching record heights. Consequently, incomes moved up rapidly.

However, the regional pace was somewhat less frantic than at the national level, where total output, Gross National Product, grew at a 9 percent annual rate in current dollars and a 5 percent rate after adjustment for price increases. The rebound of auto production and the buildup of steel stocks had a more limited impact upon regional activity. As a consequence, regional gains tended to be somewhat less than at the national level. Personal income, for instance, rose at an annual rate of 7.9 percent in New England during the first third of this year, compared with an 11.5 percent gain nationally, based upon McGraw-Hill estimates.

Consumer Spending Spurts

With a sharp rise in incomes, consumers loosened their purse strings in the first half of this year. Retail sales, after showing little growth last year, have moved upward both in the Nation and in New England. Regional sales in the first quarter, seasonally adjusted, recorded a gain of 1.2 percent (or an annual

rate of 4.8 percent) over the level of last year's final quarter. They were 8 percent ahead of the same period a year ago.

The personal savings rate in the Nation fell from an exceedingly high level of 7.8 percent in last year's fourth quarter to 7.1 percent in the first 3 months of this year. This, along with the increase in income, resulted in personal consumption expenditures in the Gross National Product accounts rising at an annual rate of 13.5 percent in the first quarter. In the second quarter personal consumption outlays rose at a slower rate, only a 6 percent advance from the first quarter level, as the savings rate moved up to 7.7 percent. Still, the gain at an annual rate for the first half of this year of a tenth exceeds all other half-year periods in the current expansion.

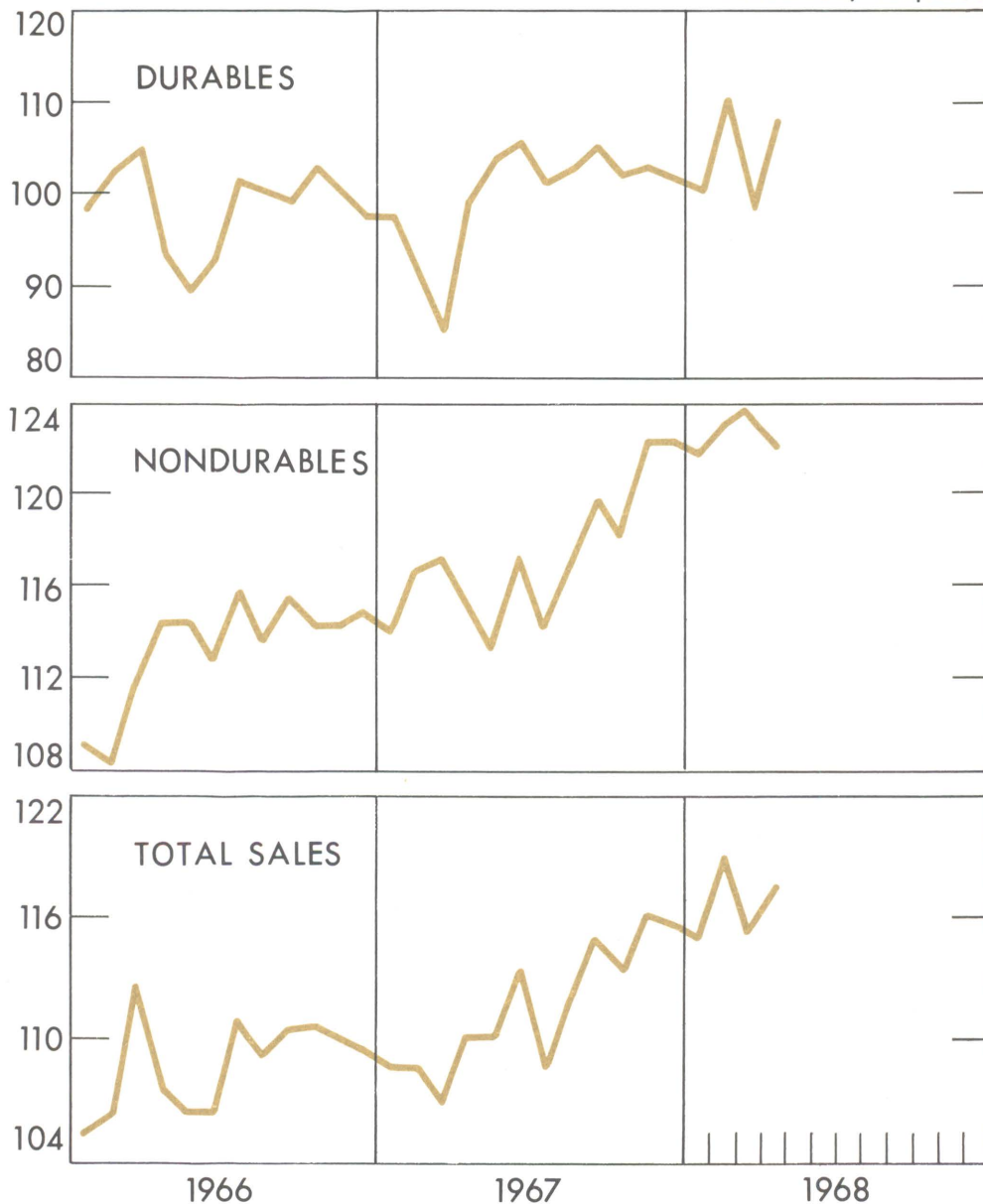
Durable goods' sales contributed substantially to the advance, with an annual rate of gain of one-fourth in the first quarter. This rise was largely on the strength of improved automobile buying in the aftermath of the auto industry shutdown last fall. New auto registrations in the six New England States were a sixth greater in the first third of 1968 than in the corresponding period of 1967.

More Jobs Created

The improvement in retail sales is reflected in a gain in wholesale and retail trade employment in New England. Seasonally adjusted, this type of employment has risen 4 percent this year over the level of the final half of 1967.

INDEX OF RETAIL SALES
New England

Seasonally Adjusted



Likewise, the services industry benefited, with the number of workers advancing 5 percent.

So far this year nonagricultural employment in total has risen by less than 2 percent over the number employed in the last half of 1967, as manufacturing employment has held constant. The stability in manufacturing is the result of offsetting trends between the durable and nondurable goods groups of industries. Durable goods employment in the past 6 months has fallen back almost 1 percent from the level in the previous 6-month period. The decline was centered in the metals and machinery industries. The copper strike, of course, held employment down in the fabricated metals industry throughout this year's first quarter. A reduction of order backlogs of machinery producers, layoffs associated with parts shortages caused by labor disputes of suppliers, labor disputes within the industry, the termination of some production facilities for integrated circuits — these all took their toll in the machinery industries.

Offsets to these declines occurred in the transportation equipment, lumber, and ordnance industries. The latter continues to increase employment month by month. The workforce advanced 8 percent in the past 6 months over that of the prior half year.

Nondurable goods employment advanced 1 percent in the past 6 months, with all the major industries participating in the gain except the paper industry. Paper producers are plagued with overcapacity. Some have had to close plants temporarily because of a lack of orders, while still others have shut plants down permanently.

Still More Workers Needed

This year the demand for labor has advanced. The National Industrial Conference

Board's index of help wanted advertising for New England, seasonally adjusted, shows a 5 percent advance in the first third of this year over the level of the second half of 1967. A number of firms in the shoe and textile industries report that they cannot find workers.

The tightening of the labor market is reflected in a reduction in the layoff rate, and an increase in the factory quit rate. These rates, adjusted for seasonality, are now approaching the levels reached in early 1966 when the demand for labor was extremely high.

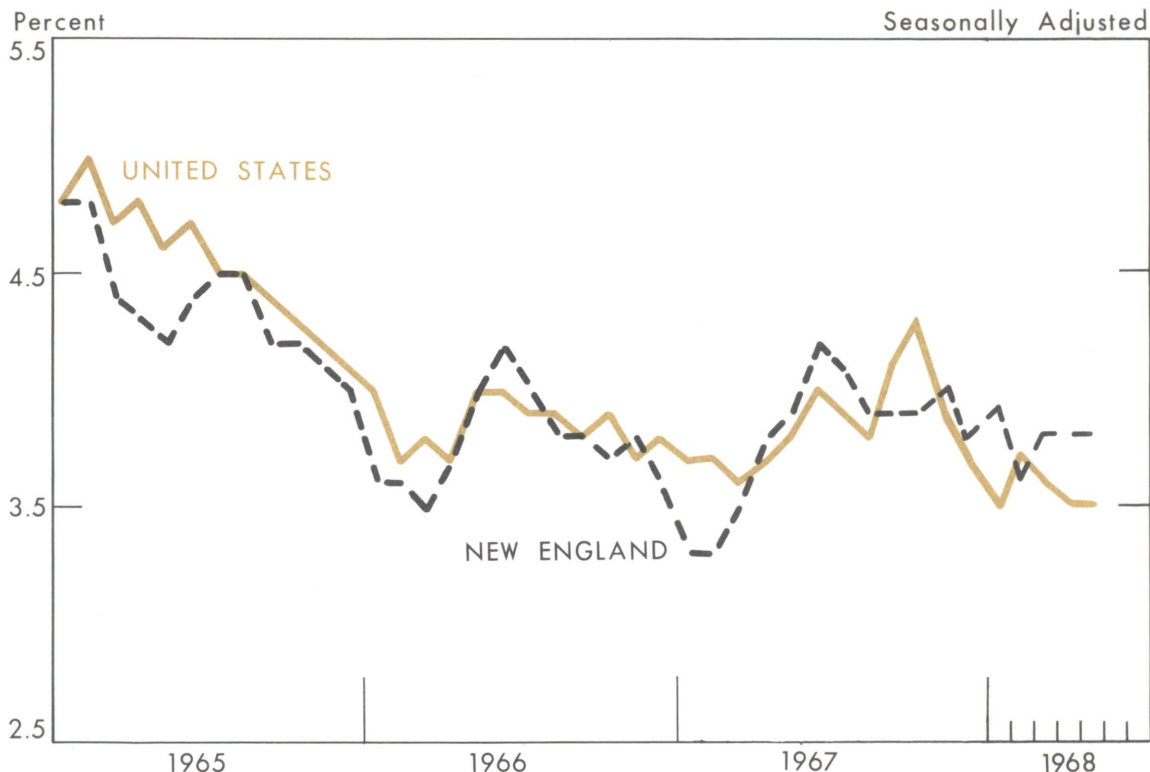
Unemployment rates across the region have fallen as the above indicators would suggest. Overall, the region's rate moved down from an average 3.9 percent in the second half of 1967 to 3.8 percent over the first 5 months of this year. An even lower rate would have prevailed, given the rise in employment, except for the substantial increase in the labor force. Over the first 5 months of this year it has risen 1.8 percent, seasonally adjusted, after holding virtually constant over the previous half year.

Manufacturing Output Steady

New England manufacturers as a whole have increased output very little so far this year. Output in the first third of 1968 is up only 1 percent from the level in the final quarter of 1967. All this increase has occurred among the nondurable goods industries, principally paper, printing and food. In the latter industry, activity has been higher in virtually all segments, but particularly buoyant in canned and frozen foods and grain mill products.

A leveling-off of production has occurred in virtually all of the durable goods industries. Labor disputes have played an important role in holding output back this year in the metals, machinery, transportation equipment, and in-

UNEMPLOYMENT RATES



strument industries in Connecticut and Massachusetts.

The production of nonelectrical machinery has held at last year's reduced fourth quarter level so far this year. Some machine tool producers report that their order backlogs are down and that they are cutting back operations both through reducing their workforce and shortening workweeks. Textile machinery producers are still operating at reduced levels. Iron pourings in the foundries of these manufacturers are now running, after consideration of seasonal factors, ahead of late 1967 levels. However, this activity is off a fourth from the level of early 1967.

Electrical machinery output has dropped back 3 percent from the record level of last year's fourth quarter. However, order backlogs are once again accumulating in this industry and producers look for output to move upward again in coming months.

The transportation equipment industry's output level is off fractionally from the level of late 1967. This industry is also expected to show some improvement in coming months, as firms engaged in shipbuilding are now seeking to augment their workforce.

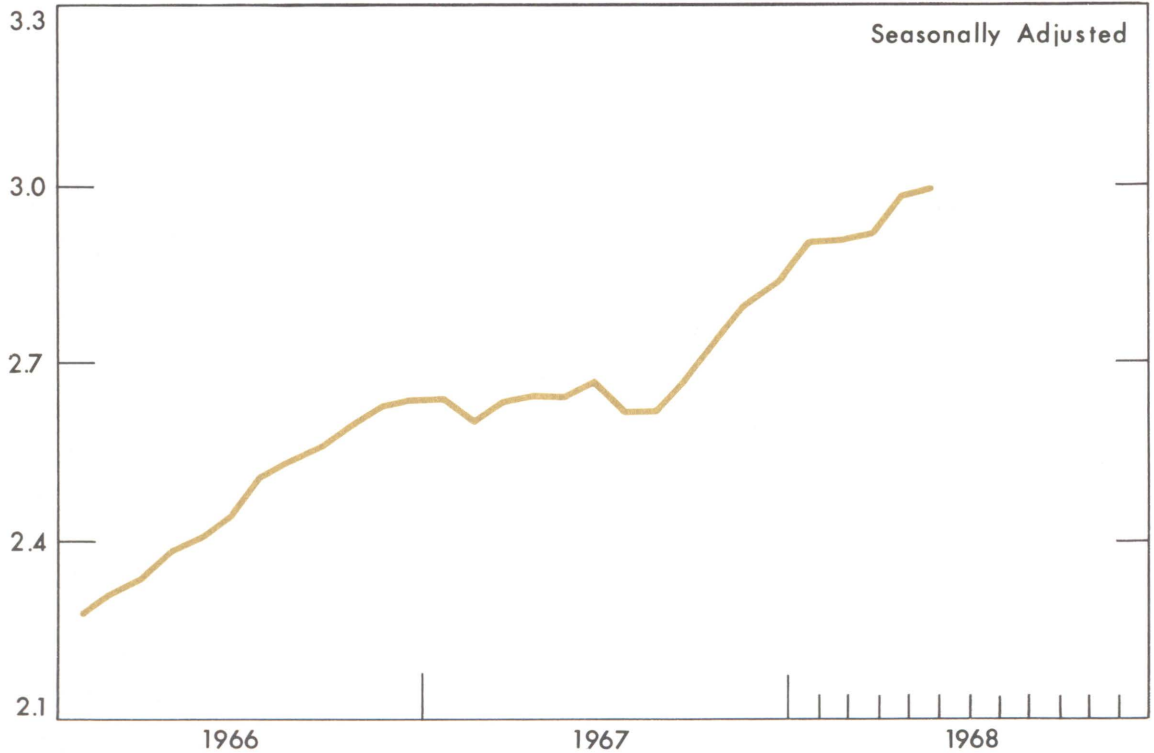
Prime defense contract awards to regional firms, after sagging sharply in fiscal 1967, have

COMMERCIAL AND INDUSTRIAL LOANS AT REPORTING BANKS

Monthly Average of Weekly Data

DISTRICT 1

Billions of Dollars



rebounded in the present fiscal year. For the first 3 quarters of fiscal 1968 contracts are an eighth greater than in the comparable period of fiscal 1967. Since production to fill these contracts occurs with some lag, employment in the defense-oriented durable goods industries is expected to advance later this year.

Construction Activity Accelerates

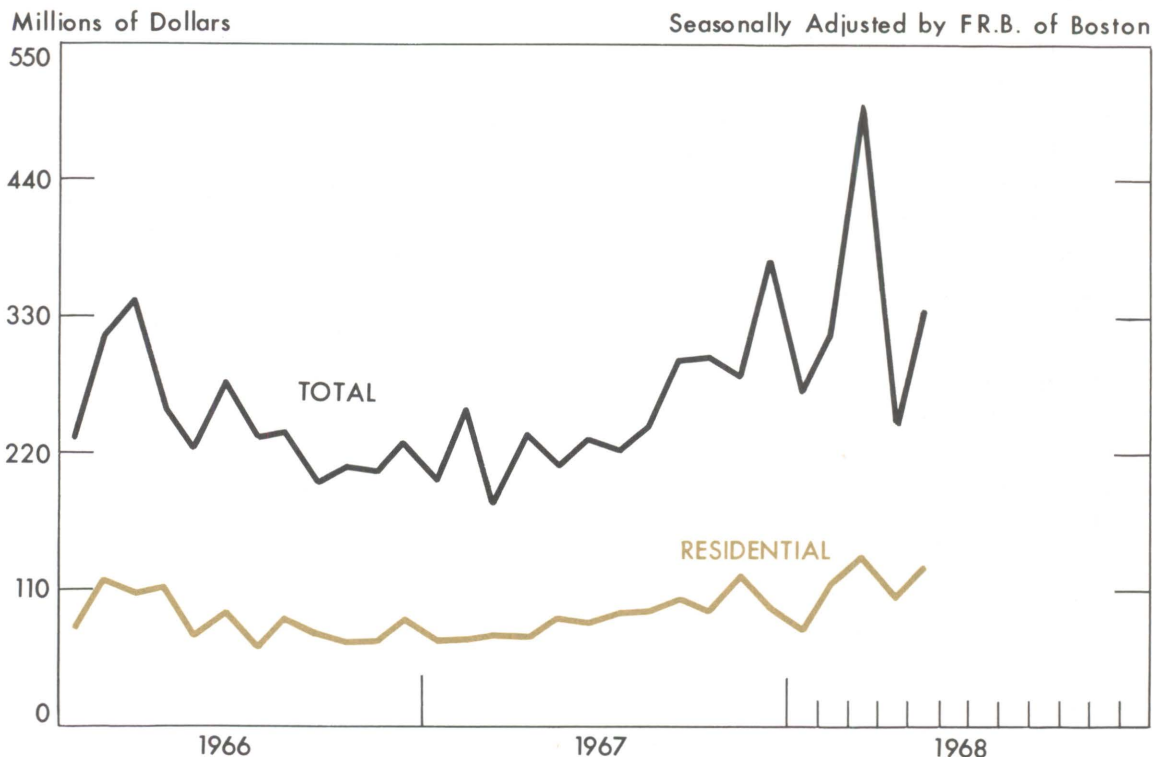
The region's construction activity shows more strength so far this year than does that throughout the Nation. The trend of total contract awards has turned down nationally, whereas in New England it is still upward. The level of construction contract awards as the

first half of this year came to a close was above the previous peak of early 1966.

New buildings have been rising in the region at a good rate so far this year. Residential contracts, as reported by the F. W. Dodge Corporation, were still trending sharply upward for both single and multi-unit housing through the first 5 months of 1968. In recent months, single family housing contracts have exceeded the previous peak level of early 1966.

Residential activity was dampened by high interest rates and limited availability of mortgage funds in 1966. However, so far this year, when interest rates are again high and

CONSTRUCTION CONTRACT AWARDS New England



credit conditions tight, residential construction has shown no evidence of declining in the region. Housing permits continue to be granted in good numbers. The average monthly level of permits over the first third of this year were a fourth higher than the monthly average in the final half of 1967, after considering seasonal influences.

Nonresidential building has remained virtually stable since last September, at a level roughly comparable to that which prevailed before the downturn in mid-1966. Commercial building contracts, which were also sensitive to higher interest rates and tighter credit conditions in the 1966 downturn, have shown con-

siderable strength this year and are still trending sharply upward as the first half of the year ends.

Rising Costs and Prices

Along with the economy's improvement this year, there has been a further escalation of costs and prices. Building costs, for example, in the Boston area, are up 9.5 percent from year ago levels, according to the *Engineering News-Record* index. The United States average shows a rise of 7 percent over the same time span.

Manufacturing wages also continue to rise in the region. Average hourly earnings of

New England **Business Review**

manufacturing production workers have advanced 3.6 percent so far in 1968 over the average level of 1967.

Consumer prices in the region have been accelerating much as in the Nation as a whole. In the Boston area these prices moved up 1.6 percent between January and April of this year, and in the latter month were 4 percent above the year-ago level. This was the largest April to April advance since the 1950-1951 period.

Tighter Credit Conditions

The first half of 1968 has seen credit demands accelerate, interest rates rise, and the availability of funds decrease. Reserves at Federal Reserve member banks in the First District have been in a net borrowed position throughout this year.

The Federal Reserve System shifted gradually to tightening credit last fall. Early this year efforts in this direction became more aggressive. An increase in member banks' reserve requirements against deposits became effective in mid-January. After February speculation of gold revaluation led to the temporary closing of the London Gold Market and the two-price system for gold. It then became clear that a reduction in the United States' balance of payments deficit had to be achieved.

At the same time, business activity was accelerating and price pressures were mounting. Consequently, the Federal Reserve discount rate was raised on March 22 to 5 percent and again on April 19 to 5.5 percent, its highest level since 1929. In addition, open market operations were employed to moderate credit expansion.

These actions brought about a rise in short-term interest rates, pushing them up near the

levels that prevailed in the credit crunch of 1966. At the same time, long-term interest rates continued to move up, well beyond the 1966 levels.

Demand deposit growth in the District has been slowed this year, reducing the availability of credit. At New England member banks demand deposits have increased at an annual rate of 5.7 percent so far this year. Last year, in comparison, they advanced 9.6 percent. Time deposit growth has also been sharply reduced from that of last year, advancing only 4.9 percent so far in 1968, or less than a fifth of the percentage gain registered in 1967.

The result has been to slow down the growth in net loans and discounts at weekly reporting banks in the First Federal Reserve District. In the first half of this year they have advanced at an annual rate of 3.2 percent, compared with an 11.7 percent rate in the preceding 6 months. Business loans to commercial and industrial borrowers, however, have failed to show a slower growth. They have expanded at an annual rate of 13.9 percent so far this year, still above the 12.6 percent gain of last year's second half.

Thus, the region enters the second half of 1968 with the supply of credit growing more slowly, and the cost of credit quite high. At the same time, the demand for funds by all types of borrowers remains substantial.

Second Half Prospects

The economic outlook for the second half of this year in both New England and the Nation revolves around the effects of the new tax surcharge and the reduction in government spending.

Mortgage funds are likely to become more available over the coming months. This will be an aid in keeping the region's construction activity at a high level. The demand for housing in the region is substantial. Vacancy rates are at an exceedingly low level in the Northeast. In the first quarter of 1968 the rental vacancy rate in the Northeast was 3.4 percent, compared with 5.5 percent nationwide. The homeowner vacancy rate was 0.7 percent in the Northeast, whereas it was 1.0 percent for the Nation as a whole.

Planning for heavy construction in the region, according to *Engineering News-Record*, in the first 6 months of this year is almost a fourth below that of the same period of 1967. Nevertheless, the backlog of these contracts is very high, standing at \$10.3 billion in May of this year, or 6 percent above the level at the beginning of 1967.

Production in the region's defense-oriented industries can be expected to increase in coming months. As pointed out earlier, prime defense contracts have shown an improvement in recent months which foreshadows a rise in production. Some offset to this may occur in government-oriented research and development expenditures. This type of activity has been declining in recent months and the decrease in government spending will continue the trend in coming months.

The steel contract will expire on August 1. If a work stoppage should occur, its effects are likely to be minor in the region, particularly since some of the Connecticut rolling mills will not be affected. However, contract expirations will occur in shipbuilding and aircraft industries this fall. Work stoppages here could have a sizeable impact upon the regional economy.

The prospects for consumer spending are hard to evaluate. The somewhat improved buying pattern of the first half could be carried into the second half, especially if the consumer has already adjusted to the tax increase. Moreover, the consumer could reduce his savings rate, offsetting much of the impact of a tax rise. Conversely, the consumer could maintain a high savings rate and reduce his purchases in the coming 6 months.

On balance, the prospects for the New England economy in the second half, as the result of a number of offsetting factors, are for a further, but relatively slow, improvement. A continued high level of construction activity and an improvement in manufacturing activity may tend to hold incomes up enough to offset much of the tax increase impact. Consumer spending may tend to show little further improvement, particularly since the catchup in auto purchases should be at an end.

In any event, a slowdown in the economy is more likely than an actual cessation of growth or a downturn.

Here's New England -

MANUFACTURING INDEXES (seasonally adjusted) 1957-59 = 100	NEW ENGLAND			UNITED STATES		
	pMay '68	Apr. '68	May '67	May '68	Apr. '68	May '67
All Manufacturing	147	146	145	166	164	157
Nonelectrical Machinery	153	156	167	177	177	182
Electrical Machinery	170	171	176	184	183	179
Transportation Equipment	157	154	167	180	175	168
<i>Textiles, Apparel, Leather</i>	105	104	102	144	143	135
Textiles	97	98	99	148	147	138
Apparel	116	113	112	n.a.	149	143
Leather and Shoes	107	106	100	n.a.	114	105
Paper	140	145	139	n.a.	159	151
	Percent Change From:			Percent Change From:		
BANKING AND CREDIT	May '68	Apr. '68	May '67	May '68	Apr. '68	May '67
Commercial and Industrial Loans (\$ millions) (Weekly Reporting Member Banks)	3,007	+ 1	+13	67,462	0	+ 9
Deposits (\$ millions) (Weekly Reporting Member Banks)	8,121	- 1	+10	197,727	0	+ 7
Check Payments (\$ billions) (Selected Metropolitan Areas)*	317.1	+ 2	+25	4,243.4	+ 1	+17
Consumer Installment Credit Outstanding (index, seas. adj. 1957-59 = 100)	188.7	+ 1	+ 6	235.7	+ 1	+ 7
DEPARTMENT STORE SALES (index, seas. adj. 1957-59 = 100)	134	- 4	+ 2	n.a.	n.a.	n.a.
EMPLOYMENT, PRICES, MAN-HOURS & EARNINGS						
Nonagricultural Employment (thousands)	4,375	+ 1	+ 3	67,723	0	+ 4
Insured Unemployment (thousands) (excl. R.R. and temporary programs)	81	-13	+ 1	1,004	-15	-14
Consumer Prices (index, 1957-59 = 100)	n.a.	n.a.	n.a.	120.3	0	+ 4
Production-Worker Man-Hours (index, 1957-59 = 100)	103.1	+ 2	- 1	115.6	+ 2	+ 1
Weekly Earnings in Manufacturing (\$) (Mass.)	113.48	- 2	+ 3	120.99	- 1	+ 6
OTHER INDICATORS						
<i>Total Construction Contract Awards** (\$ thous.)</i>	398,250	+22	+66	5,488,307	+18	+18
Residential	148,156	+35	+60	2,358,206	+17	+36
Nonresidential	141,932	+20	+32	1,861,443	+21	+ 4
Public Works and Utilities	108,162	+11	+273	1,268,658	+13	+14
Electrical Energy Production (4 weeks ending May 25) (index, seas. adj. 1957-59 = 100)	188	+ 2	+ 6	199	+ 1	+ 7
Business Failures (number)	58	+ 6	-18	909	- 9	-17
New Business Incorporations (number)	1,140	- 5	+10	19,940	+ 2	+ 7
*Seasonally adjusted annual rate **3-mos. moving averages — Mar., Apr., May						
	p = preliminary			n.a. = not available		