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Economies of Scale in Commercial Banking
Part 1 . . . the measurement and impact

Expanding operations within existing banking facilities result in significantly lower unit costs. For many banks, however, the savings are offset by the greater expenses of branching operations.

New England's Building Boom

Construction contract awards rose sharply last year in the region. Moreover, prospects are good for a high level of construction activity this year.

FEDERAL RESERVE BANK OF BOSTON

Economies of Scale
in Commercial Banking
Part I . . . the measurement and impact

By Frederick W. Bell and Neil B. Murphy

Much of the controversy over State and Federal banking laws regarding branching, merging, and other regulation stems from differences of opinion about the competitive capabilities of small banks. Does size give large banks an inherent advantage and allow them to operate at lower unit costs? How great are these cost savings?

One way of investigating these questions is to study the production process in commercial banking. Banks hire the services of labor, capital equipment ranging from desk calculators to sophisticated electronic computers, and materials to produce the range of services offered to the public. If a proportional increase in each input results in a greater than proportional increase in output, economies of scale are said to exist. These economies result in lower unit operating costs as the bank grows

since fewer inputs per unit of output are needed. For example, a 10 percent change in output is accompanied by a less-than-10-percent change in total costs if economies of scale are present.

An important distinction, however, must be made between methods of expansion. First, a bank with a fixed number of offices or branches may expand its total output. A second way is to add branch offices to handle the additional business.

This article shows that within existing facilities, expanding operations result in significantly lower unit costs. For many banks, however, these savings are offset by the greater expenses of branching operations.

How and What Do Banks Produce?

A steel mill's output can be easily defined in terms of physical units of similar products; however, the output of a bank is diverse and consists of a broad range of specialized services. The typical commercial bank is a multi-product firm engaged in servicing demand and time

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deposit accounts; processing business, instalment, and real estate loan accounts; and providing many other services. From a cost standpoint, all these functions or services may be regarded as different products. Thus, a meaningful analysis of bank costs must consider each function separately.

For example, the servicing of demand deposit accounts is a distinct "production line operation." Associated with this function are the receiving and processing of checks, involving sorting, tabulating and many other detailed operations. Tellers, bookkeeping machine operators, and many kinds of equipment are employed to process or "produce" a demand deposit account.

To measure the relation between bank costs and output, data on 283 commercial banks for 1965 were obtained from the Functional Cost Programs of the Boston, New York, and Philadelphia Federal Reserve Districts.[1] This sample represents approximately 20 percent of all commercial banks in the three districts and includes a somewhat higher proportion of intermediate and fairly large banks. Moreover, these banks range from $2.8 to $801 million in assets, indicating a significant dispersion in the scale of operations. As Table 1 shows, cost data for the sample are classified by several functions or product lines. The most important functions are either fund supplying or fund using. What follows is a detailed description of the relations between costs, output, and other factors for the principal fund using and supplying bank functions.

The Demand Deposit Function

The holding and transfer, on demand, of funds (checking accounts) is a unique and one

[1] See note on page 11 for a detailed description of this program.

of the most important products offered by commercial banking. In the *typical* bank, the demand deposit function supplied 48.6 percent of the total pool of funds available for lending and investment.[2] Of all functions, demand deposits is the largest one, comprising approximately 33.7 percent of costs and 51.1 percent of employment.

There are essentially two kinds of demand deposits: *regular* and *special*. Regular checking, which is available at favorable rates when accounts are both active and large, is used primarily by business firms and institutions. Special checking or convenience accounts, where service charges are assessed on a per check basis, are used by individuals who have minimum account activity and usually carry only a small balance. In the typical bank, approximately 60 percent of the total demand deposit accounts are of the regular variety. For each demand deposit account bookkeeping entries are made, statements are prepared and sent out, checks are processed and ancillary banking services are made available such as receiving payments for large business firms.

Statistical analysis of the 283 Functional Cost banks revealed that the total direct cost — such as labor, rentals on equipment, postage and stationery — of servicing demand deposits depends largely on the volume or number of accounts. It was found that a 10 percent increase in the total number of accounts resulted in a 9.1 percent increase in total direct cost, *holding constant all other factors which might influence cost including the number of branch offices.* Thus, economies of scale with existing

[2] Because of wide variation in the size of banks and the related distortion of simple averages, the geometric mean was used to more accurately describe the *typical* bank. See note on page 11 for technical description.

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facilities are significant in the production of demand deposit accounts. These economies, of course, may be restated in terms of the average cost of producing a demand deposit account. A 10 percent increase in the scale of operations with existing branch facilities, as measured by the total number of accounts, will decrease average unit cost by .91 percent. Chart 1 indicates these relationships. For example, the average annual cost of a demand deposit account for a typical bank handling 1,000 accounts was $35.05, while a bank at a scale level of 50,000 accounts processed the same account for $24.26, holding all other factors constant.

Of course, the nature of the demand deposit account may vary from bank to bank, depending on *average size*, the *percent of regular to total number of accounts*, and *activity*. In analyzing scale economies with a given complement of branch offices, these factors were controlled or held constant since they appreciably influence costs. However, their separate influences may also be evaluated. For example, increasing the average size of all demand deposit accounts by 10 percent increased total direct costs by 4.0 percent. This is the case since more services are afforded to depositors maintaining large accounts. Also, since more statements and other services are supplied to those depositors with

Table 1
FUNCTIONAL COST AND EMPLOYMENT FOR THE TYPICAL COMMERCIAL BANK*
1965

Function	Number of Banks Reporting	Direct Cost of Operation	Percent of Total Cost	Employees	Percent of Total Employees
FUND SUPPLYING					
Demand Deposits	283	$225,360	33.7%	32.4	51.1%
Time Deposits	264	41,230a	6.2	4.2	6.6
FUND USING					
Real Estate Loans	264	28,090	4.2	2.4	3.8
Instalment Loans	272	85,635	12.8	8.3	13.1
Business Loans	282	45,410	6.8	4.2	6.6
Securities	281	8,936b	1.3	0.5	0.8
OVERHEAD					
Business Development	275	28,200	4.2	1.2	1.9
Administration	272	70,105	10.5		
Occupancy and Maintenance	277	91,300	13.7	5.7c	9.0c
OTHER					
Safe Deposit	265	8,312	1.3	1.1	1.7
Trust Department	217	35,743	5.3	3.4	5.4
TOTAL		668,327	100.0	63.4	100.0

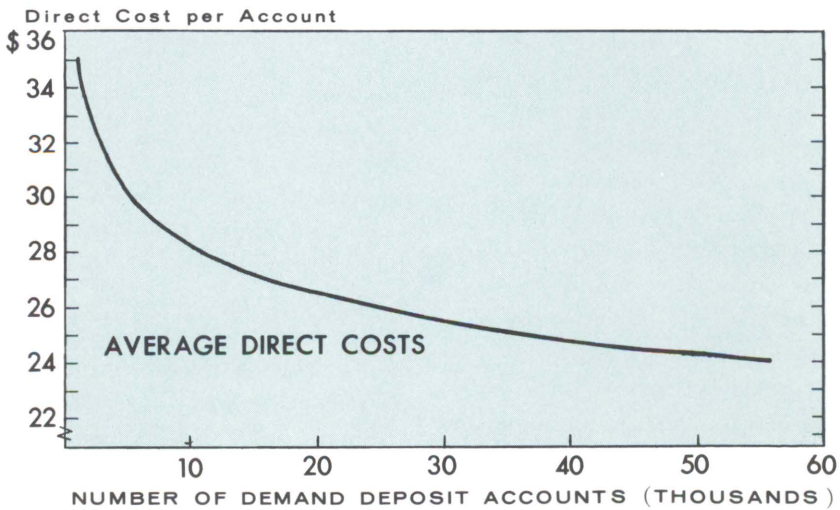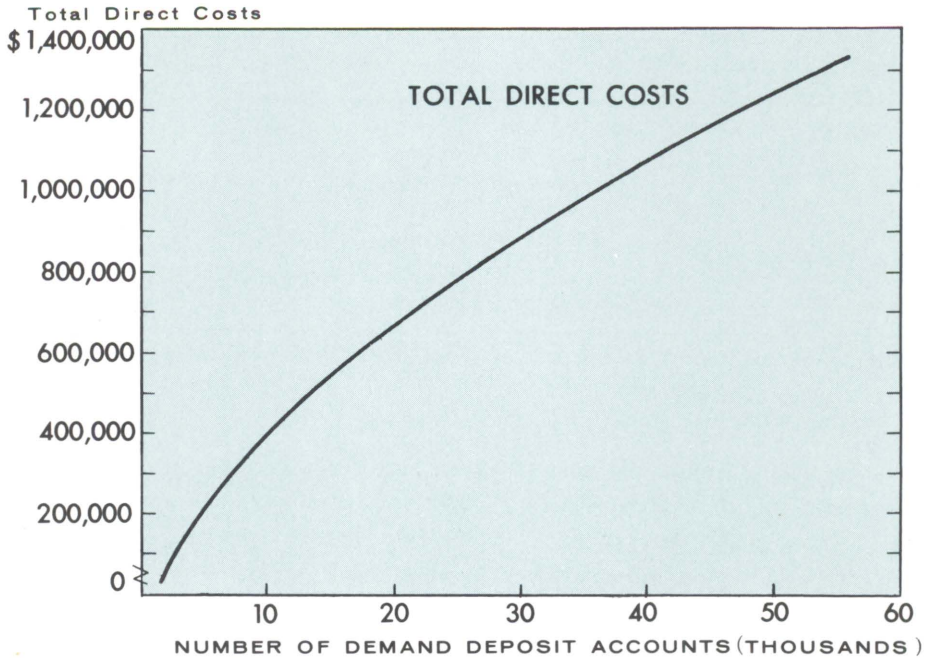* Derived from a sample of 283 commercial banks in Boston, New York, and Philadelphia Federal Reserve Districts.
a Excludes interest costs.
b Excludes interest on borrowed money.
c Administration and Occupancy figures combined.

Source: Federal Reserve Banks of Boston, New York, and Philadelphia.

Chart 1
RELATION BETWEEN TOTAL AND AVERAGE DIRECT COSTS
WITH THE NUMBER OF DEMAND DEPOSIT ACCOUNTS,* ANNUAL BASIS
1965

Total Direct Costs

NUMBER OF DEMAND DEPOSIT ACCOUNTS (THOUSANDS)

Direct Cost per Account

NUMBER OF DEMAND DEPOSIT ACCOUNTS (THOUSANDS)

*ALL OTHER VARIABLES WHICH AFFECT COSTS ARE HELD
CONSTANT AT THEIR GEOMETRIC MEAN VALUES FOR SAMPLE.

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Table 2

IMPACT ON DIRECT COST FOR THE DEMAND DEPOSIT FUNCTION
OF FACTORS OTHER THAN SCALE OF OPERATION
1965

Factor	Measure	A 10% Increase in Factor will Increase Total Cost by:
CHARACTERISTICS OF ACCOUNTS		
Size	Average Balance per Account	4.0%
Activity	Index of Items per Account*	3.1
Composition	Percent Regular of Total Number of Accounts	2.4
LABOR MARKET		
Wages	Annual Wage per Employee	4.2

* Deposits, withdrawals, and transit items included in index to establish overall activity per account.

Source: Federal Reserve Bank of Boston.

regular checking accounts, the cost of handling those accounts is higher than for special checking accounts. Thus, a 10 percent increase in the proportion of regular checking accounts to all accounts resulted in a 2.4 percent increase in cost. For example, a commercial bank with approximately 7,800 accounts had an average annual cost per account (both regular and special) of $29.00, a weighted average based on the typical 60 percent proportion of regular accounts. A typical regular account alone cost approximately $34.00 to process while a special cost $22.00. Finally, account activity has an important bearing on costs. Checks processed, deposits, and transit items handled are all measures of activity. As part of this study, an index of activity was constructed and placed on a per account basis. The results show that a 10 percent increase in the activity of all accounts was accompanied by a 3.1 percent increase in cost.
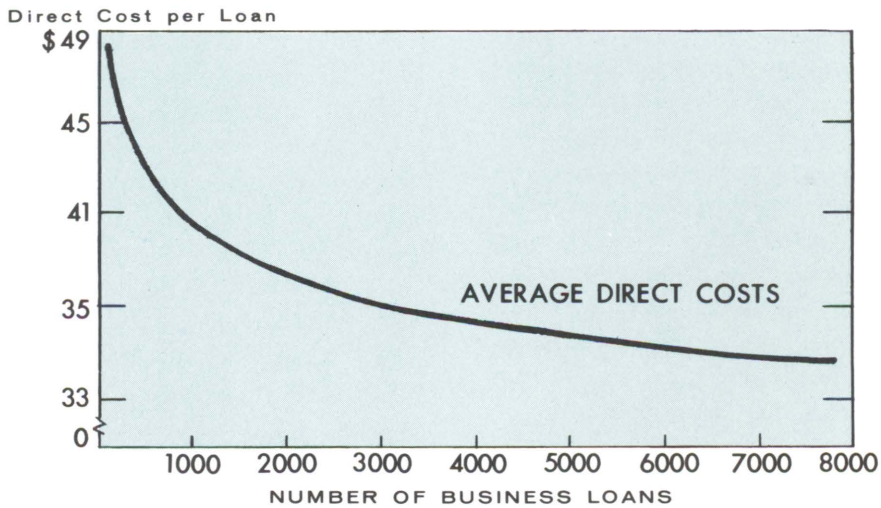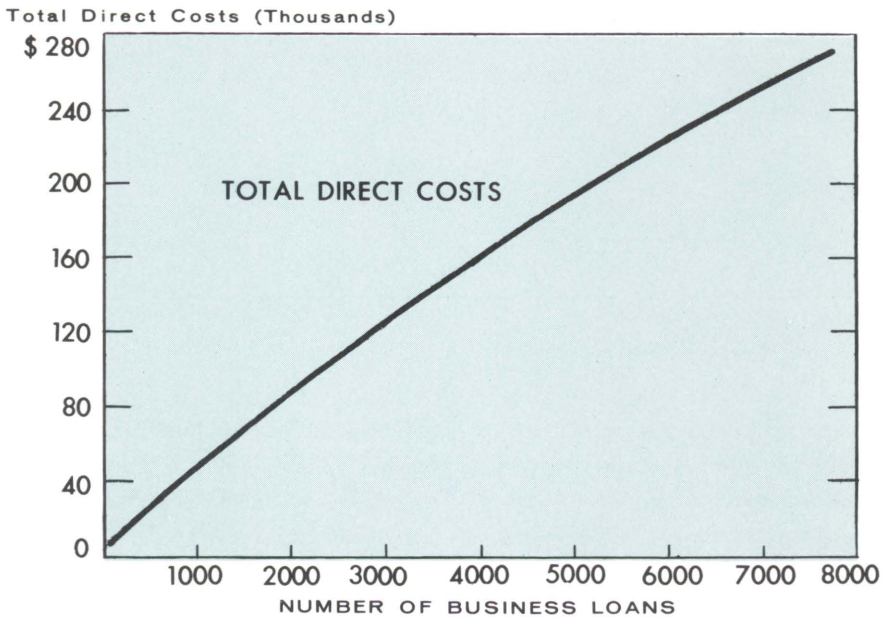
In addition to account characteristics, other factors also influence cost. Annual wage rates varied significantly among banks, ranging from $2,937 to $7,094 per bank employee (including officers). Total wages and salaries amounted to about 66.9 percent of total cost and thus, variations in average wages are important. It was found that a 10 percent increase in the annual wage rate per employee resulted in a 4.2 percent rise in total cost.

Business Loans

Business loans, which include all loans except real estate, instalment, and advances of a liquidity type such as commercial paper or call loans to brokers, are a significant aspect of industrial expansion for the economy. They represent a major source of credit for manufacturing, finance, and wholesale trade establishments. For the typical commercial bank in the sample, these loans were about a fifth of all earnings assets and represented the most significant source of income. For the typical bank, processing of business loans incurred 6.8 percent of total costs and required 6.6 percent of employment.

Chart 2
RELATION BETWEEN TOTAL AND AVERAGE DIRECT COSTS
WITH THE NUMBER OF BUSINESS LOANS,* ANNUAL BASIS
1965

Total Direct Costs (Thousands)

TOTAL DIRECT COSTS

NUMBER OF BUSINESS LOANS

Direct Cost per Loan

AVERAGE DIRECT COSTS

NUMBER OF BUSINESS LOANS

* ALL OTHER VARIABLES WHICH AFFECT COSTS ARE HELD
CONSTANT AT THEIR GEOMETRIC MEAN VALUES FOR THE SAMPLE.

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Table 3

**IMPACT ON DIRECT COST FOR THE BUSINESS LOAN FUNCTION
OF FACTORS OTHER THAN SCALE OF OPERATION
1965**

Factor	Measure	A 10% Increase in Factor Will Increase or Decrease Total Cost by:
CHARACTERISTICS OF ACCOUNTS		
Size	Average Size of Loan Account	8.3%
Riskiness	Interest Rate Charged	9.6
Specialization in Business Loans	Percent Business Loans to Total Loans	−2.0
LABOR MARKET		
Wages	Annual Wages per Employee	2.0

Source: Federal Reserve Bank of Boston.

The direct cost of the business loan function consists mainly of wages, salaries, and credit reports. These costs are directly related to the loan account, the basic measure of output. Applications must be processed, credit investigations must be made, records posted, notices sent out, and forms prepared.

Statistical analysis revealed that a 10 percent increase in the number of business loans resulted in a 9.2 percent increase in total direct cost, holding constant other factors. Thus, significant economies of scale with a given number of branch offices exist in this fund using function. The result is a decline in average cost per business loan account as the scale of operations is increased. The annual average cost of processing a business loan account for a bank granting approximately 300 loans was $45.88 while a bank with 7,800 loans processed the same account for $34.95 as indicated in Chart 2.

Also, the total cost of producing business loans is appreciably influenced by the size of the loan. Large loans require more extensive credit investigations. Large borrowers are usually large depositors and receive more attention from the loan officer. A 10 percent increase in the size of all business loans resulted in an 8.3 percent increase in total cost. Costs are also related to the riskiness of the loan. Extensive credit checks and inventory audits of goods accepted as security for loans will raise costs in handling customers who are relatively poor risks. The bank usually charges a higher rate of interest in these cases. For this reason the rate of interest earned was used as a proxy for the riskiness of the loan. A 10 percent change in the rate of interest on all accounts increased total cost by 9.6 percent. In addition, a bank that specializes in business loans will usually incur slightly *lower* costs of operation, as compared to a bank that distributes its resources among various kinds of loans.

Finally, wage rates varied in the business loan function from bank to bank, ranging from $4,321 to $28,352 per year. A 10 percent increase in the wage rate resulted in a 2.0 percent increase in costs among the banks analyzed.

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Overall Economies of Scale

Since a sample of banks was used in this study, a natural question is whether the estimates of economies arise from pure chance. That is, are the economies of scale observed in the sample only a chance departure from no economies of scale that exist in the universe of banks in the three districts? Tests show, however, that demand deposits, real estate, instalment and business loans, business development, securities, and trust operations all yield economies that could only have arisen 1 out of 100 times if in fact no economies of scale existed. These seven functions represent 68.3 percent of costs and 82.7 percent of bank employment. Slight economies of scale were also obtained in the case of occupancy and administration.

If the typical commercial bank were to expand all its activities within its existing facilities by 10 percent, total cost would rise by 9.3 percent as indicated in Table 4. Of course, the expansion in the number of demand and time deposit accounts will increase the funds supplied to the various investment and loan functions. In the example, these increased funds will be

Table 4
IMPACT ON OVERALL BANK COST OF A 10 PERCENT INCREASE IN THE SCALE OF OPERATION IN EACH FUNCTION
1965

Function	Measure of Output	Average Cost per Bank before Increase in Scale	Percent Increase in Costs	Average Cost per Bank after Increase in Scale[a]
FUND SUPPLYING				
Demand Deposits	Account	$225,360	9.1%	$245,868
Time Deposits	Account	41,230	10.0	45,353
FUND USING				
Real Estate Loans	Account	28,090	8.4	30,456
Instalment Loans	Account	85,635	9.7	93,941
Business Loans	Account	45,410	9.2	49,588
Securities	Value of Securities Portfolio[b]	8,936	8.0	9,651
OVERHEAD				
Business Development	Total Assets[b]	28,200	8.2	30,512
Administration	Total Assets[b]	70,105	9.6	76,835
Occupancy and Maintenance	Total Assets[b]	91,300	9.3	99,791
OTHER				
Safe Deposit	Boxes Rented	8,312	10.4	9,176
Trust Department[c]	Account	35,743	9.4	39,103
TOTAL		668,327	9.3	730,274

a In this example, it is assumed that loan deposit ratios and capital deposit ratios do not change as the bank expands.

b Used as proxy for output. (Excludes cash and equipment.)

c Some data on Trust Department operations were obtained outside the Functional Cost program.

Source: Federal Reserve Bank of Boston.

Table 5
THE NET IMPACT OF SCALE ECONOMIES
AND BRANCH BANKING ON COSTS
1965

Number of Branches Added	Cumulative Increase in Costs Due to Branching	Increase in Cost Due to Output Expansion of 100 Percent	Total Increase in Costs
1. Demand Deposit Function			
1	6.1%	91%	97.1%
2	12.2	91	103.2
3	18.3	91	109.3
4	24.4	91	115.4
2. Business Loan Function			
1	5.6	92	97.6
2	11.2	92	103.2
3	16.8	92	108.8
4	22.4	92	114.4

Source: Federal Reserve Bank of Boston.

ample to facilitate the expansion of the fund using functions assuming the bank does not vary its mixture of investments and loans.

The Impact of Branching

Holding other factors constant, significant economies of scale have been detected in the production of many bank services. As pointed out above, these economies accrue to a banking firm with a fixed number of offices which expands output at each location without adding new branches. However, the method by which the bank expands may have a significant impact on costs. Branch banking is usually more expensive than unit banking since many operations that might be conducted under one roof must be duplicated in each branch. In addition, transportation of checks and more extensive communication make branching more costly. It should be noted that these costs do not include overhead and initial capital expenditures which are obviously higher under branch systems.

Suppose that two unit banks of equal size decide to merge to form a main downtown office and a branch. This merger increases the scale of operations of the demand deposit function for the acquiring bank, thus economies of scale accrue. The volume of demand deposits would increase by 100 percent while total direct cost would rise by 91 percent. However, higher costs associated with branching operations tend to offset the cost savings from increase in scale. Analysis of the functional cost banks revealed that the cost of demand deposits for a main office with one branch would be on the average 6.1 percent higher than for one unit bank handling the total volume at one office. Therefore, total direct cost of demand deposits would rise by 97.1 percent due to the merger. Costs would rise still further if the bank added additional branches. This is illustrated in Table 5 as the number of offices increases to share a fixed expansion in the volume of output.

Higher costs for branching operations were found consistently for practically every function except business development, securities, and trust. Moreover, the analysis revealed that if a bank were to expand through branching, economies of scale would be largely offset by the additional cost of branching operations for many functions.

The Implications

The explanation of the variance in cost of production among banks may be a useful guide to an individual bank in comparing its costs to the sample of banks used in this study.[3] Comparison may reveal areas of significantly higher costs that might be explained by inefficient methods or use of equipment.

However, the individual bank cannot ascertain its maximum profit from the information developed here. Maximum profit depends on operating revenue as well as costs. Thus, minimum costs may not yield maximum profit. Only through an examination of the revenue derived from each function and the resulting costs can individual bank policy be formulated. It is hoped that this article suggests some answers to the cost side of the question.

[3] A more detailed research report will be published this summer.

A SPECIAL NOTE

The Functional Cost Program

The Bank Relations Departments of the Federal Reserve Bank of Boston and the Federal Reserve Bank of New York both embarked on a program of collecting, processing, and editing cost data for smaller commercial banks in their respective districts in the mid-1950's. Realizing that a uniform program would be preferable, the Banks combined the two programs into the present **Functional Cost Program,** initiated in 1962.

At the present time, eleven Federal Reserve Banks sponsor such a program for any member bank with deposits over $3.5 million. Over 100 banks in the Boston Federal Reserve District are expected to participate this year. The national total will exceed 1,200.

This program is a co-operative venture between the Federal Reserve Banks and the participating member banks. The methods and procedures for defining bank functions and allocating cost and revenue are developed by the Federal Reserve Banks and periodic workshops are held to discuss the allocation procedures and methods to assure comparable and uniform reporting. The Reserve Banks provide the participating banks with schedules and worksheets. The schedules are returned to the Reserve Banks and are processed, edited, and summarized. The participating banks receive their own report together with a comparison of their results with those of a group of similar size banks.

The program produces a valuable management tool for the participants while at the same time providing the Reserve Banks with a wealth of data which can be utilized better to understand and serve the banking system.

The Typical Bank

The size of any bank function may be expressed in terms of costs, number of accounts, or employment. Frequency distributions of the numbers of banks were plotted using these measures of size. The distributions were not normally clustered around the simple arithmetic average. A number of large banks in the sample made the arithmetic average much too high and consequently an inadequate representation of the typical bank. The geometric mean has the advantage of eliminating this bias. It can be defined as the following:

$$Mg = \sqrt[n]{X_1 \cdot X_2 \cdot X_3 \ldots X_n}$$
$$\text{or } \text{Log } Mg = \frac{\text{Log } X_1 + \text{Log } X_2 + \text{Log } X_3 + \ldots \text{Log } X_n}{n}$$

Where n is the number of observations and X_1 through X_n are the observed sample values. Frequency distributions of logarithms of the various measures of bank size were symmetrically distributed about the logarithm of the geometric mean. Therefore, this measure reflects the central tendency of the sample and is a superior measure of the typical bank.

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New England's Building Boom

by Edwin F. Estle

NEW ENGLAND'S construction industry as a whole has been flourishing in the 1960's. A building boom of unprecedented heights has occurred. Already in this decade as much floor space has been built in the region as was built in all of the 1950 decade.

Last year construction contract awards, as reported by the F. W. Dodge Company, rose 16 percent, marking the sixth straight year in which awards have risen in the region. Annual construction outlays in New England are now approaching the $3 billion level.

The prospects for a continuing advance this year, and, indeed, for some years to come are quite good. *Engineering-News Record* reports that the region's backlog of heavy construction planning at the start of this year was almost $9.5 billion. This was up a tenth from the level a year ago. The bulk of this backlog is in public buildings, industrial plant, and commercial buildings. Moreover, many projects for urban renewal, for new office buildings, for new schools, etc. are to be added to this backlog in the months to come.

RESIDENTIAL CONSTRUCTION

One sector of the region's construction industry, residential building, did slow down last year. It too, had been rising steadily, although somewhat slowly, since 1960. Last year the restrictive effects of tight money and rising costs of labor and materials were quite apparent in the decline of housing construction in the region. The decline was particularly noticeable in the second half of last year. For all of 1966 the dollar value of New England's residential building contracts, according to the Dodge reports, trailed the 1965 level by 7 percent. For the Nation, however, the decline was more precipitous, awards falling back 16 percent.

The three northern New England states actually registered an increase last year in the value of residential construction awards. Maine led with an increase of 26 percent over 1965's level, followed by Vermont, up 13 percent, and New Hampshire, up 4 percent. The southern states, in contrast, trailed the 1965 level by 8 to 11 percent.

A comparison of New England's performance in home building with that of the Nation can be obtained by relating the number of housing units built to the growth in population. So far in the 1960's, 494 homes have been built for every 1,000 increase in the region's population. Nationally, the number built has been 488 per 1,000 increase in population.

A substantial rise in residential construction in the region is unlikely to occur in the early months of this year. Housing permits in December of 1966, the latest month available, were down 16 percent from the same month the year before in New England. Permits normally lead housing starts by about 4 months. Another possible repressive effect upon residential building is the suspension of accelerated depreciation allowances on rental housing which went into effect last fall.

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However, a significant upturn in home building could occur in the last half of this year. Mortgage credit has eased somewhat in recent months and vacancy rates have been falling slightly.

NONRESIDENTIAL CONSTRUCTION

Nonresidential Buildings

Almost all types of nonresidential building construction registered an increase (both in square feet and dollar value terms) in the region last year. The advance for all non-residential building was $314 million, or 34 percent. Public buildings were the one exception in this rise, falling 21 percent over the year. Construction of public buildings excluding schools has been declining steadily in the region since 1963.

The largest relative increase, up by half, in nonresidential buildings occurred in the construction of various types of buildings for manufacturers. The need for additional capacity resulted in a 69 percent increase in the dollar value of contracts for new manufacturing plant according to the Dodge report. However, contracts for warehouses to be built for manufacturers declined 56 percent in value — 48 percent in terms of space — last year. Perhaps the most significant change in terms of New England's economic future occurred in the jump in contracts for laboratories built for manufacturers. Last year 41 contracts for these laboratories were let for a value more than six times as great as the 14 contracts in 1965. These new laboratories will permit New England firms in the paper, rubber, chemical, and electronics industries to conduct more pure and applied research.

Construction of educational and science buildings also rose sharply last year. Thirteen million more square feet of school and college classroom space were added in the region, up a fourth from the amount built in 1965. Contracts for laboratories, excluding those in manufacturing, rose by half in terms of square feet and by three-fourths in dollar value.

The region's trade and service industries have been growing at a rapid pace in this decade, creating a need for additional facilities. This is reflected in the upsurge in construction of commercial buildings. Last year contracts for commercial structures (offices, stores, restaurants, and garages) advanced almost a third in New England. Nationally, in contrast, construction contracts for commercial buildings rose only 7 percent.

With an ever increasing flow of patients requiring medical attention, the region's hospitals have been expanding rapidly in recent years. Contracts for hospitals and other health treatment buildings rose by almost half last year. In the previous 3 years spending for hospitals had held near $100 million each year, while before 1963 they had run at a $50 million level for a number of years.

Nonresidential building in the region this year is likely to remain close to last year's high level. The suspension of the accelerated depreciation credit will probably hold spending down somewhat. Still there are many rather firm plans to begin construction this year of new office buildings, stores, schools, manufacturing plants, etc. in the region. If the economy remains near its current high levels, these plans will be turned into contracts to ease the pressures on capacity.

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Nonbuilding Construction

Contracts for all types of nonbuilding construction advanced by more than a third last year in New England. Declines, however, took place in a number of categories, for example, in streets and highways down 15 percent, and in dams and reservoirs, reduced by more than half. These declines were more than offset by the large jump in electric power and heating system contracts, which rose by more than two and a half times to $140 million last year. The electric and gas utilities have extensive programs to increase their capacity in the years ahead to meet the burgeoning power needs of the region. Other types of nonbuilding construction registering an increase last year included bridges, water supply systems, and airports.

As already indicated, more contracts pertaining to electric and gas systems can be expected this year. In addition, plans call for more contracts for airport construction, bridges, etc. Federal funds for highway construction in the region were deferred by 18 percent in this fiscal year. This amount may be pushed into the coming fiscal year, which would give some stimulus to street and highway construction in the latter half of this calendar year and next year. Presently 167 miles of the interstate system are under construction in the region, with 356 more miles yet to be built. On balance, therefore, nonbuilding construction should register an advance in New England this year and for some years to come.

EFFECT UPON EMPLOYMENT AND WAGES

The overall rise in total construction activity in the region has created some 22,000 additional jobs in New England's construction industry since 1960. The largest gains occurred in 1964 and 1965, when almost 9,000 workers were added each year. Last year, even with the downturn in residential building, employment advanced 1 percent to a monthly average level of 186,200 workers.

This buildup in workforce has resulted in a rapid rise in wages. For all building trades,

AVERAGE VALUE PER SQUARE FOOT OF BUILDING CONTRACTS IN NEW ENGLAND

Type of Building	$ Per Square Foot 1965	$ Per Square Foot 1966	Percent Change 1965–66
Commercial	$13.35	$13.66	+ 2.3%
Manufacturing	9.29	10.40	+11.9
Educational and Scientific	21.39	23.04	+ 7.7
Hospital and Other Health Treatment	28.90	32.09	+11.0
Religious	22.62	22.40	− 1.0
Public	29.96	26.52	−11.5
Amusement, Social and Recreational	17.76	19.09	+ 7.5
Residential	13.25	13.43	+ 1.4
All Types	13.82	14.12	+ 2.2

Source: Derived from **F. W. Dodge Reports.**

INDEXES OF NEW ENGLAND CONSTRUCTION STATISTICS, 1960 = 100
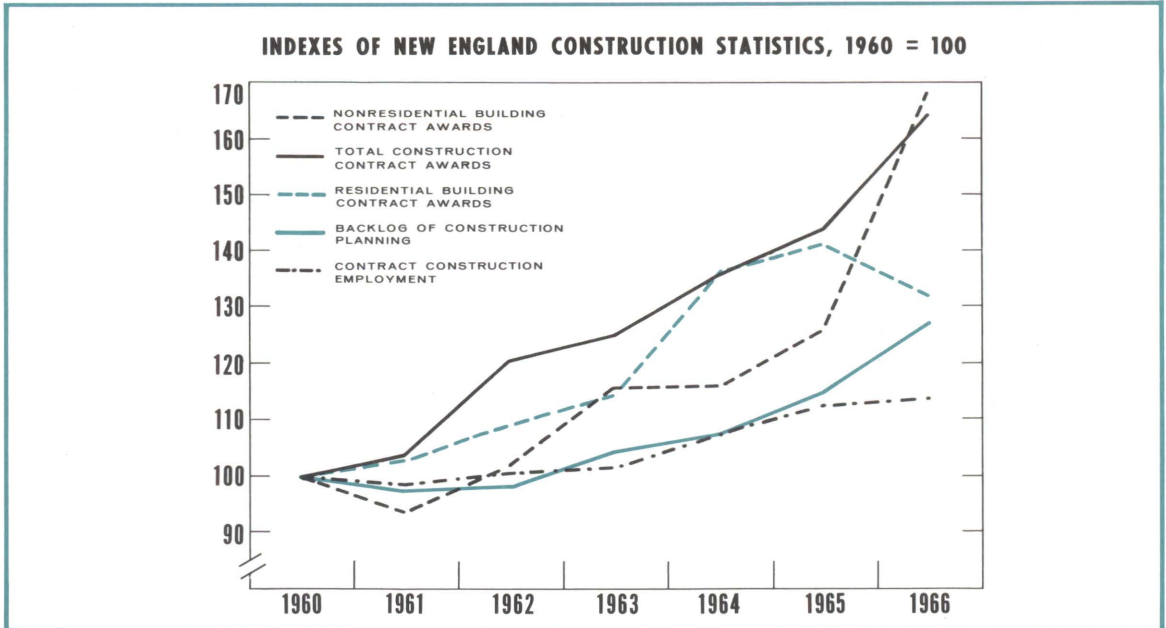
the average union hourly wage rate in New England advanced 23 percent over the 1960-65 period. Nationally, the rise was 21 percent. Regional average wage data for 1966 are as yet unavailable. However, average hourly earnings data for construction workers in Connecticut show an increase of 5.6 percent last year over the 1965 level.

CONSTRUCTION COSTS

In addition to rising labor costs, a sharp rise has occurred in the costs of construction materials and in financing. A cost index of all types of construction maintained by *Engineering-News Record* shows that in the Boston area costs advanced 7.8 percent last year compared with a 2.5 percent increase in 1965. The same source also compiles a cost index exclusively for buildings which indicates a 4.5 percent rise in the Boston area, compared with a 1.1 percent increase in 1965.

The increase in cost is reflected in the changes in value per square foot shown in the table on page 14. Virtually every type of building shows some advance from 1965 to 1966. Some of this increase may also be due to changes in quality and type of construction, however.

SUMMARY

To recapitulate, New England's construction contract awards rose sharply last year, continuing the advance that has occurred throughout this decade. Of interest is the much stronger performance shown in the region than in the Nation last year. Nationally, according to the Dodge data, total construction awards rose only 2 percent in the Nation, compared with the 16 percent gain in New England. The relative increase for the region in virtually every type of construction activity exceeded that for the Nation. Moreover, the prospects for continuing the region's high level of total construction activity this year are very good.

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Here's New England –

MANUFACTURING INDEXES (seasonally adjusted) 1957–59 = 100	NEW ENGLAND pJan. '67	NEW ENGLAND Dec. '66ʳ	NEW ENGLAND Jan. '66ʳ	UNITED STATES Jan. '67	UNITED STATES Dec. '66	UNITED STATES Jan. '66
All Manufacturing	151	150	142	160	161	153
Nonelectrical Machinery	180	175	157	192	190	172
Electrical Machinery	175	164	156	188	188	178
Transportation Equipment	162	169	161	165	172	163
Textiles, Apparel, Leather	107	108	111	139	141	139
Textiles	101	101	107	138	142	140
Apparel	117	122	124	n.a.	150	146
Leather and Shoes	105	107	107	n.a.	110	111
Paper	138	138	136	153	153	151

BANKING AND CREDIT	Jan. '67	Percent Change From: Dec. '66	Percent Change From: Jan. '66	Jan. '67	Percent Change From: Dec. '66	Percent Change From: Jan. '66
Commercial and Industrial Loans ($ millions) (Weekly Reporting Member Banks)	2,548	− 3	+16	60,702	0	+14
Deposits ($ millions) (Weekly Reporting Member Banks)	7,167	+ 2	+ 6	181,596	+ 2	+ 3
Check Payments ($ billions) (Selected Metropolitan Areas)*	243.2	+ 4	+11	3,561.8	0	+ 9
Consumer Installment Credit Outstanding (index, seas. adj. 1957–59 = 100)	177.5	0	+ 7	219.2	0	+ 8

DEPARTMENT STORE SALES (index, seas. adj. 1957–59 = 100)	141	+ 4	+ 6	n.a.	n.a.	n.a.

EMPLOYMENT, PRICES, MAN-HOURS & EARNINGS						
Nonagricultural Employment (thousands)	4,181	− 2	+ 4	64,316	− 2	+ 5
Insured Unemployment (thousands) (excl. R.R. and temporary programs)	111	+26	− 8	1,584	+27	− 4
Consumer Prices (index, 1957–59 = 100)	115.1 (Mass.)	0	+ 3	114.7	0	+ 3
Production-Worker Man-Hours (index, 1957–59 = 100)	108.6	− 1	+ 5	116.1	− 3	+ 4
Weekly Earnings in Manufacturing ($)	106.92 (Mass.)	− 1	+ 5	113.15	− 1	+ 3

OTHER INDICATORS						
*Total Construction Contract Awards*** ($ thous.)	165,280	−16	−10	3,162,645	−12	−13
Residential	58,580	−15	−24	971,880	− 9	−35
Nonresidential	80,456	−10	+ 4	1,319,340	−14	0
Public Works and Utilities	26,244	−30	− 7	871,425	−12	+ 7
Electrical Energy Production (4 weeks ending Jan. 28) (index, seas. adj. 1957–59 = 100)	173	0	+ 9	180	+ 1	+ 7
Business Failures (number)	74	+12	+45	1,191	+13	+10
New Business Incorporations (number)	1,224	+13	− 4	18,714	+14	− 5

*Seasonally adjusted annual rates.
**3-mos. moving averages — Nov., Dec., Jan.

p = preliminary   n.a. = not available

r = revised figures. These include new seasonal adjustments, new productivity ratios based on the 1963 Census of Manufactures, and revised New England and United States man-hour statistics. Revised indices from July 1960 are available on request.