



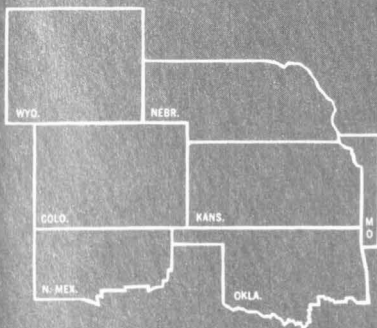
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FEDERAL RESERVE BANK OF KANSAS CITY

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Correspondent Banking

Part III: Account Analysis

By Robert E. Knight

Traditionally the backbone of the correspondent banking relationship has been formed by overline loan participations, transit operations, bond portfolio advice and services, and loans to bank officers. Personal relationships often determined where balances would go and in time a degree of permanence tended to solidify the relationship. Today these traditional services continue to be the ones which smaller banks generally find most valuable.

The first article in this series, which appeared in the November 1970 *Monthly Review*, examined the distribution and behavior of correspondent balances. The types of services offered by correspondent banks were discussed and figures presented indicating the extent to which these services are utilized by respondent banks.¹ The primary focus of the second article, published in the December 1970 *Monthly Review*, was on the need for loan participations. The percentage of banks requiring different types of participations and the average dollar amounts involved were analyzed. Partial figures were derived showing the net flow of funds between correspondent banks and their respondents. This article

¹Throughout this article, "correspondent banks" (or "correspondents") refer to banks accepting deposits from other banks and in return offering services to these banks. "Respondents" or banks in general are considered to be the recipients of these services.

will explore the account analysis procedures used by correspondents to determine the profitability of servicing individual accounts.

Correspondent banking, like most other aspects of banking, has experienced major changes in recent years. Perhaps the most significant development has been the increase in the number and quality of services provided by correspondents. Correspondent banks have been asked to clear checks more quickly and efficiently and requested to take an ever increasing amount of loan participations. Smaller banks have sought improved access to the money markets in such areas as Federal funds transactions. Respondents have also been offered numerous new services; electronic data processing, in some cases with remote terminals located directly in the bank; portfolio analysis; credit cards; location studies; international banking assistance; cost analysis and budgeting; profit sharing and retirement plans; mortgage banking assistance; and trust department advice, to mention only a few.

In an attempt to obtain better services from correspondents, a slow but generalized movement has developed to consolidate accounts in those correspondents with established records of performance. The high levels of interest rates of recent years made many banks acutely aware of the potential earnings which

were being lost on many friendship and entertainment accounts, and these accounts were closed or drastically reduced in size. While requesting more from their correspondents, banks have generally been willing to provide increased compensation. It is both remarkable and surprising that during a period in which interest rates rose to the highest levels in nearly a century and account consolidation became more pronounced, total correspondent balances grew more rapidly than in any other time in the postwar period.

ACCOUNT ANALYSIS

The recent period of high interest rates and decreased liquidity has also witnessed a development that may ultimately bring a complete restructuring of the correspondent banking business. Larger correspondent banks, confronted with an increasing demand for loans from their own nonbank customers, for loan participations from banks, and for more services from smaller banks, began seriously to analyze the accounts of respondent banks to determine the profitability of serving as their correspondents. In some instances the impetus for the analysis came from the need to determine an accurate measure of float on cash letters. Some smaller banks were attempting to sell uncollected balances in the Federal funds market.

Account analysis is not new; it has been performed for years on both corporate and correspondent accounts, but the serious application of the analysis is relatively novel. In the analysis, correspondent banks determine the revenue from a typical correspondent account by multiplying the average collected balance, normally adjusted for reserve requirements, by an earnings credit or allowance. The expenses of servicing the account are determined by multiplying the number of times a bank utilizes a given service by the cost (generally including an allowance for profit) of providing the service. A typical

Table 1
FIRST NATIONAL BANK

Account Analysis For
Month of

EARNINGS ALLOWANCE

Average Ledger Balance		\$ _____
Less Average Uncollected Funds		\$ _____
Average Collected Balance		\$ _____
Less Legal Reserve of (17 1/2%)		\$ _____
Average Balance Available for Investment		\$ _____
Earnings Allowance (_____ %)		\$ _____
INVESTMENT VALUE		\$ _____

EXPENSES

Account Maintenance	\$2.00	\$ _____ 2.00
Credits	7¢ each	\$ _____
Debits	7¢ each	\$ _____
Deposited Items		
Not Encoded	2 1/4¢ each	\$ _____
Encoded	1 1/4¢ each	\$ _____
Returned Items	25¢ each	\$ _____
Stop Payments	\$2.00 each	\$ _____
Wire Transfers	\$1.50 each	\$ _____
Coupon Envelopes		\$ _____
Currency Transactions		\$ _____
Coin Shipped		\$ _____
Safekeeping		\$ _____
Float Overdrafts		\$ _____
_____		\$ _____
_____		\$ _____
_____		\$ _____
TOTAL EXPENSES		\$ _____
NET PROFIT (OR LOSS)		\$ _____

account analysis schedule is shown in Table 1.

The methods of account analysis differ widely among banks. Some correspondents charge for services such as safekeeping of securities, wire transfers, currency and coin preparation, advice, etc., while others do not figure these items directly in the analysis. Virtually all banks, however, levy fees for ledger entries, deposited items, and returned items. Unfortunately, there is little agreement among the larger banks about the charges which should be made for providing even the

most basic services. In part, these differences are due to alternative methods of allocating and calculating cost. Three basic approaches may be followed: marginal cost pricing, average variable cost pricing, and average total cost pricing. The different approaches can perhaps best be explained by an example.

Assume for a moment that a smaller bank has always kept a good balance with a correspondent but that it has never used the correspondent to clear checks. The small bank is now considering that possibility and wants to know how much it will cost to send checks to the correspondent.² The smaller bank estimates that it will send 50,000 checks per month to the correspondent. These will be amount encoded.

In considering the possible charges for this service, the following dialogue might typically ensue within the correspondent bank. The first to speak might be the correspondent bank officer responsible for the smaller bank. "It seems to me that we have a lot of people in the check collection department who are not busy all the time. The bank has always kept a good balance with us. Our computer has plenty of excess time available. If the bank would agree to time its delivery for our slack period, our only cost would be a few supplies. I don't think we should charge them anything."

The manager of the check collection department rises, "Even if their cash letters don't always arrive at our slack period, we can handle the load without hiring any new employees or purchasing new equipment. I agree supplies would not be very expensive, but they ought to be considered. In my opinion we ought also to charge for employee and equipment time. Figuring the cost of these supplies, equipment time, and the wage and fringe benefits of the employees, it will

cost me around \$300 per month to service these checks."

The comptroller interrupts, "Our most recent analysis showed us that it costs 3 cents per check to handle the first 2,000 transit items and 2½ cents for each check after that.³ You gentlemen are forgetting to include the costs of the building, insurance, taxes, support personnel, postage, management overhead, and our allowance for profit. According to my calculations, we should charge \$1,260 per month."

The correspondent bank officer retorts, "You mean our profits will be \$1,260 per month higher if we don't do this service!" The comptroller shook his head that this would not be the case, as the correspondent bank officer continued, "In my opinion if we don't agree to clear these checks the bank may close out its correspondent account. We'll lose both the deposit and the earnings from it if that happens."

Which officer is correct? What should be charged for clearing the checks? Might the situation be approached differently? Allocating the costs in a multiple product firm such as a bank is always highly arbitrary. The difficulty is further compounded by the fact that banks generally must maintain staff and equipment to handle peak loads, but most of the time do not operate at capacity. The correspondent bank officer who argued that no fee should be charged was trying to apply the marginal cost principles he had learned in his sophomore economics course. The head of the check collection department remembered, however, that to avoid losses, average variable costs must always be covered in the short run. In effect, he was stating that only costs directly attributable to the correspondent bank department should be considered in pricing correspondent services. The gen-

²/Small banks rarely pay correspondents directly for such services as check clearing. Nevertheless, the required compensating balance which a respondent is expected to maintain is based on the analysis of expenses.

³/The sliding scale is often used as an alternative to charging an account maintenance fee.

eral costs of being in business and top management salaries should be absorbed by other departments in the bank. The bank comptroller was looking at the long-run situation in which total revenue must exceed total costs. However, he was forgetting that average fixed costs⁴ tend to decline as volume expands. As may be seen in the hypothetical example, alternative methods of analyzing a situation can give rise to very large differences in costs. It is not surprising that the average price to clear one encoded check often varies significantly among correspondent banks.

The difficulties in costing bank services are manifold. At any point in time, many bank costs appear to be fixed. Plant and equipment expenses are sunk; most employees are salaried; and overhead normally shows little variance with output. By comparison, the increase in total costs which a bank incurs from providing a standard service to one additional customer is normally small—supplies, postage, space on the computer, perhaps occasional overtime, etc. In the short run, any revenue gain in excess of these marginal costs adds to total profits. If the bank were to charge these costs, however, the charges would not make any contribution toward meeting the heavy fixed costs and could lock the bank into an unrealistic price structure. On the other hand, if the bank were to charge average total costs, the situation might be reversed. Most banks maintain substantial excess capacity. If the price were set equal to estimated average total cost (or perhaps average historical cost), the customer would be asked to pay not only for the cost of providing the service, but also for the cost of maintaining the excess capacity and any inefficiencies that may be present. Studies which show the average cost of performing

certain services in an efficient manner—standard cost studies—can be used to eliminate charges for unused capacity and waste, but even so, an arbitrary element remains.

Alternative methods of allocating the expenses of general bank overhead and support departments (such as the mail room, personnel department, computer service, and employees' cafeteria) can result in widely different cost figures. For some bank services, these costs may constitute as much as 40 to 50 per cent of total costs. Partly to avoid this difficulty, some banks do not directly include general overhead in costing studies. In this alternative approach, total bank revenue must be sufficient to cover processing cost and overhead, but overhead itself is considered a cost of being in business and is not attributed to any specific group of activities.

Differences in the number of discrete activities being costed can give rise to variations in the costs for specific services. For example, many banks have found that ledger entry credits are more expensive to process than ledger entry debits. Banks which do not separate the two would have only a single figure for ledger entries which should lie between the average costs of debits and credits. The same situation would prevail for banks which differentiate between encoded and non-encoded items received and those banks which do not. The cost of processing returned items generally exceeds the cost of handling normal items in cash letters. Some correspondents, consequently, include a separate entry for returned items in the account analysis. Others, however, lump the cost for returned items in with the cost for items deposited, thus producing a higher per item deposited cost, other things being equal, than at those banks which calculate a separate charge for each.

In a complete cost study all bank costs must be allocated. Although an element of uniformity exists among correspondents in

⁴/Fixed costs are those costs which do not vary directly with output. Examples would include depreciation of plant and equipment, directors' fees, overhead wages and salaries, and property taxes.

the types of transactions which are commonly included in the account analysis, variants in the specific activities considered may produce differences in estimated costs. Further differences could arise from the alternative types of costs which may be estimated. Nevertheless, for account analysis purposes the vast majority of banks calculate either the average total standard or historical costs of providing services. In determining the charges which will be made to respondent banks, however, a number of modifications are often made in the cost figures. The average cost figure may be increased to include a profit margin or it may be reduced if competing banks are charging substantially lower amounts. The prices may also be modified to reflect the earnings allowance used in computing the investment value of an account. Banks which use an unrealistically low earnings credit are likely to have very low charges, and vice versa. A few banks, though, have low charges and high earnings credits to help them build a larger correspondent business. In view of these adjustments, the common tendency for bank officials to refer to the charges as cost figures is probably quite misleading.

EARNINGS ALLOWANCES AND CHARGES: THE SURVEY RESULTS

In an effort to broaden the information available on account analysis procedures and to obtain representative data on charges and earnings credits, the Federal Reserve Bank of Kansas City, in cooperation with other Federal Reserve Banks, asked 93 major correspondents to supply copies of their account analysis forms in use during July 1971. The sample contained banks in all sections of the country except the South. Three of the banks contacted indicated that their analysis procedures were being revised and did not feel that their current formulas would be meaningful. One bank stated that a formal account

analysis had never been instituted, while another noted that its analysis formula had originally been developed for another bank which was also included in our survey. These five banks were excluded from the sample. Of the remaining 88 banks, 77 supplied copies of their analysis forms. During the course of the survey, approximately one-half of these banks were personally interviewed to learn how the data for the analysis are compiled and used.

Most correspondents analyze the accounts of respondents monthly, but exceptions are common. A few banks analyze accounts only quarterly or semiannually, while several examine accounts three or four times each month. At least two banks calculate the net collected balance for each respondent daily to prevent banks from drawing on uncollected funds or attempting to sell them in the Federal funds market. Regardless of the frequency of the analysis, nearly all correspondents look at the figures from a long-run point of view. If an account proves to be unprofitable in one or two consecutive months, the correspondent will generally ignore the loss, provided the account is sufficiently profitable in subsequent months.

Although the objective of account analysis is to estimate the profit or loss represented by the account, an element of caution must be maintained in interpreting the figures. At the majority of banks only the most basic correspondent transactions such as clearing checks have been costed. Many activities are not included in the analysis statements. Common examples would be security safekeeping and investment advice, overline loan participations, assistance with sophisticated types of loans, account referrals, credit information, and loan lines. Even though allowance is frequently not made for such services in the account analysis, few correspondent banks will seriously consider specialized assistance if a respondent's account has not been suf-

ficiently profitable over the long run or if the bank has not maintained adequate balances to compensate for the service. For this reason a sizable number of correspondent banks prefer to think of the profit or loss figure as the amount available to compensate for other services rendered. Some banks, to avoid stating a profit or loss on the analysis statement, convert the figure to "unused" funds available for other services. In any event, the profitability figure or the "unused" funds balance must be adjusted mentally for services performed by correspondents but not included in the analysis.

Uncollected Funds

In performing an account analysis, all the correspondent banks surveyed begin by subtracting average uncollected funds from the respondent's average ledger balance to obtain an estimate of average collected funds. Uncollected funds represent the dollar amount of cash and noncash items which respondents send to correspondents for clearing, but for which the correspondent is unable to obtain immediate credit. In calculating this float, most correspondents use the Federal Reserve's clearing schedule as a guide to the availability of funds. However, the accuracy of the calculations varies considerably. Some correspondents analyze every cash letter received, while others simply study letters periodically to develop an estimated float factor. Interestingly, those banks which work with a float factor often state that subsequent examination of fund availability from cash letters rarely results in a significant change in the float factor for a given bank. Nevertheless, the float estimates are likely to be subject to a substantial margin of error. The availability of funds sent direct to payor banks or to other correspondents may differ considerably from the Federal Reserve's published schedule. Midwestern and eastern banks noted an increasing tendency to send

checks drawn on southern and western banks direct because clearing could be accelerated. Slight delays, on the other hand, in the receipt of cash letters by banks using a float factor may result in a mushrooming of float which would not be noted in the account analysis.

Perhaps most surprising is the magnitude of uncollected funds. Among correspondents which were able to provide figures, the ratio of uncollected funds to total ledger balances of respondents ranged from 16 to 80 per cent, with figures between 30 and 55 per cent being the most common. The average uncollected funds ratio was 42 per cent. In conjunction with the survey of correspondent banks, data on collected and uncollected balances held at primary correspondents during the same period were gathered for a sample of 344 respondent banks located in various sections of the country. As would be expected, individual respondents displayed considerably greater diversity in the proportions of uncollected funds. The ratio often tended to be very high for small banks which clear large volumes of checks through correspondents and near zero for respondents whose accounts are relatively inactive. Active clearing accounts of rural respondents averaged 51.0 per cent uncollected funds and those of urban respondents 55.1 per cent. The distribution of uncollected funds as a per cent of ledger balances for banks clearing large numbers of checks through primary correspondents is shown in Table 2.⁵ These figures indicate clearly that the deduction made for uncollected balances in the account analysis is normally quite large.

⁵The figures in the table cannot be taken as representative of the situation generally. By coincidence, the data were largely collected from correspondents which tend to have comparatively low ratios of uncollected funds to ledger balances. Furthermore, although the sample size is inadequate to draw strong conclusions, the figures suggest marked differences may exist among geographical regions in the typical uncollected funds ratio. New England respondents, for example, regularly had higher ratios than did midwestern banks.

Table 2

UNCOLLECTED FUNDS AS A PER CENT OF LEDGER BALANCES FOR BANKS CLEARING TRANSIT ITEMS THROUGH CORRESPONDENTS

Uncollected Funds as a Per Cent of Ledger Balances	Per Cent of Respondents
0 to 10%	5.0%
10 to 30%	25.8%
30 to 50%	35.4%
50 to 70%	20.4%
70 to 90%	10.0%
90 to 100%	0.8%
Over 100%	2.7%

During the analysis period, as shown in Table 2, a small group of respondents had uncollected funds averaging over 100 per cent of ledger balances. Such negative collected balances represent a loan from the correspondent to the respondent by the amount of uncollected funds. A number of correspondent banks, therefore, include an interest charge in the analysis statement for funds advanced. Among survey banks the most typical fee is the prime loan rate, but the interest charges vary from below the discount rate to several percentage points above the prime rate. While a sizable group stated that charges would be levied for chronic deficiencies, only slightly more than one-fourth of the banks indicated that they regularly charged for float overdrafts.⁶ In cases of negative collected funds, correspondents normally work with respondents to develop methods of improving the availability of funds, such as earlier mailing of cash letters. Although no clear geographical pattern is evident in the banks which regularly levy fees for negative collected balances, a slightly smaller proportion of banks in the eastern and central plains states have such charges. Perhaps respondents in these sections of the country are less frequent offenders.

⁶/See Item 11 of Table 5.

Available Funds

For most correspondents the second step in performing an account analysis is to calculate the available or investable funds represented by the respondent's balance. This measure is normally obtained by subtracting an allowance for reserve requirements from the collected balance figure.⁷ By far the majority of banks deduct actual reserve requirements of the Federal Reserve—17½ per cent at reserve city correspondents and 13 per cent at country correspondents. Of the remaining banks, as may be seen in Table 3, 13 deduct a larger percentage than actual requirements, 3 a smaller percentage, and 4 make no deduction. The maximum deduction is 25 per cent, but the most common non-reserve requirement deduction is 20 per cent—the same as is commonly subtracted in the analysis of corporate accounts. In analyzing the account of a corporate customer, banks often subtract an allowance not only for required reserves, but also for correspondent balances they keep in other banks on the premise that these balances are necessary for clearing checks deposited by corpora-

Table 3
RESERVE REQUIREMENT DEDUCTIONS AT CORRESPONDENT BANKS

Percentage Deduction	Number of Banks
No deduction	4
13%	3
16 ½%	1
17%	2
17 ½%	53
18%	2
18 ½%	1
20%	9
25%	1

⁷/Three of the banks in the survey reduced the earnings allowance rather than the collected balance figure by the required reserve percentage. Since the estimated earnings value of an account is simply the product of these two variables, the effect of the alternative deductions is identical. To improve comparability of the data, all banks making allowance for reserve requirements in the account analysis were assumed to have made the deduction from collected balances.

tions. Since the earnings allowance could be readily adjusted to reflect any variance in the percentage deductions for unavailable funds, differences in the deductions might largely be expected to cancel out in the calculation of earnings. However, some banks which make comparatively small subtractions have considerably above average earnings allowances and some banks which have above average deductions impute average earnings allowances.

Earnings Allowance

The earnings or revenue from a correspondent account is obtained by multiplying the available funds figure (or the collected balance figure if no deduction is made for required reserves) by the earnings allowance. Of the banks surveyed, 46 per cent tie their earnings credits to specific money market rates, the 3-month Treasury bill rate being the most common. Several banks also use the discount rate, the representative Federal funds rate, or a rate 1 or 2 per cent below the prime loan rate. Administratively set earnings allowances may reflect money market rates, the rate a bank is willing to pay for time deposits in unlimited amounts, or the overall yield on the bank's total loans and investments. If the earnings allowance is tied to money market rates, it is normally changed monthly or quarterly. The frequency of adjustment for administratively set rates varies considerably. At some banks the rate has not been altered in years, but at others it is changed monthly.

The earnings allowance at correspondents at the time of the survey ranged from annual rates of 3.36 per cent to 6.60 per cent, with the average and median percentages being 4.81 and 4.97, respectively. The distribution of rates allowed is shown in Table 4. The average and median earnings credits are somewhat lower than average money market rates during July 1971, but

Table 4
EARNINGS ALLOWANCES
AT CORRESPONDENT BANKS

<u>Earnings Allowance as a</u> <u>Per Cent per Annum</u>	<u>Per Cent of</u> <u>Correspondent Banks</u>
Less than 4%	2.6%
4 to 4 ½%	19.7%
4 ½ to 5%	31.6%
5 to 5 ½%	31.6%
5 ½ to 6%	10.5%
More than 6%	4.0%

are about equal to the average 91-day Treasury bill rate for the 3 months ending in July. Abstracting from the fact that most small banks are subject to lower reserve requirements than are their correspondents, the imputed return is about equal to the yield a respondent could earn on its correspondent balances if the funds were invested in Treasury bills. The similarity, however, is partly coincidental. The large fraction of correspondent banks which do not have an automatically fluctuating earnings credit causes the average earnings credit to be less than money market rates when market rates are high or rising. In any event, the earnings allowance at most correspondent banks is below the average portfolio income on demand deposit funds. The Federal Reserve's functional cost studies show that among large banks the return on invested demand deposit funds has averaged about 1/2 per cent above the market yield on 3-month Treasury bills during the last 3 years.

Analysis Charges

Although most large correspondent banks determine the revenue from accounts in a similar fashion, much greater diversity is evident in the methods of calculating the total expenses for performing correspondent services. The majority of banks charge for only a small group of basic transactions such as check clearing, wire transfers, and ledger

entries, but a handful of banks have identified and charge for as many as 500 separate banking services. As explained earlier, omission of some services from the formal account analysis does not mean that correspondents do not mentally consider these services when evaluating an account, but rather that no formal pricing procedures have been developed. Of necessity, the survey results reported in this section are limited to those activities for which charges are commonly assessed.

A movement is presently underway among correspondents to refrain from stating the earnings allowance and the per item charge on analysis statements and instead to show only the collected balance which a bank must maintain for each unit of a given service. Despite the apparent clouding of earnings credits and charges in such an approach, the resulting figures are probably more meaningful for interbank comparisons. Even though a correspondent may have a higher per item charge, if the correspondent is more generous with its earnings allowance and makes a smaller deduction for reserves, the collected balance required for that service may be smaller than at another bank which has lower charges. Similarly some banks charge prices which are greater than costs to obtain a profit, while others charge estimated costs but give an earnings allowance less than actual earnings. To correct for these differences, all item charges have been converted to annual balance requirements for each transaction.⁸ If accounts are analyzed by correspondents on a monthly basis, the required monthly bal-

ances, ignoring complications of compounding, would be 12 times these amounts.⁹

Before turning to the survey findings, the limitations of the data should be noted. The collected balance figures are based on actual charges during July 1971. To the extent money market rates and earnings allowances change, or correspondents modify account analysis charges, the figures would no longer be applicable. At the time of the survey a surprisingly large number of banks indicated that their account analysis forms were under review. With the absence of some irregular charges which have not been tabulated and an accurate measure of float associated with cash letters, the tabulations presented below do not contain sufficient information for a bank to calculate the balances its correspondents would expect it to maintain.

The collected balance requirements for selected correspondent services are shown in Table 5.¹⁰ As may be seen in the table,

9/Maintenance fees are an exception to this generalization. Balance requirements for maintenance are not affected by the time period covered in the analysis. The table shows the annual balance requirements for the maintenance of an account for 1 year. If the account analysis were performed monthly, the same dollar balance would compensate for the maintenance for 1 month.

10/In reducing the analysis charges to the common denominator of required collected balances, a number of difficulties arose. Many correspondents charge only occasionally for some services, and in these instances the amount is normally determined by administrative decision rather than a predetermined price schedule. Because correspondents in such cases often stated that the charges would vary with the specific circumstances, no attempt was made to include the possible charges in the averages. Several correspondents have sliding earnings credits which rise with the size of the respondent's balance or with the activity of the account. Since the variance in the earnings allowance in these cases is generally small, maximum rates have arbitrarily been used to determine the required collected balances.

Most correspondents list explicit account maintenance fees in their analysis, but a number have only indirect maintenance fees. Such maintenance fees could arise if a correspondent has a charge for a monthly statement or has varying charges for the number of items deposited. The correspondent, for example, might charge 2 1/4 cents for the first 1,000 items deposited and 2 cents for all additional items. In effect, banks which clear over 1,000 checks are charged a maintenance fee of \$2.50 and a rate per check of 2 cents. In tabulating the results, any charge for a regular monthly statement has automatically been considered to be an account maintenance fee; but a similar adjustment cannot be made for banks which have marginal charges for the number of items deposited. In a few instances the number of items required to secure the minimum charge per item is so high that comparatively few banks would be able to qualify. Since it makes little difference in the averages whether the minimum or maximum per item charges are used, the minimum

8/To calculate the annual collected balance requirement for a transaction, data is required on the transaction price, the earnings credit or allowance, and the deduction, if any, made for reserve requirements. Assume, P = price per transaction for a given service, i = earnings credit or allowance at an annual rate, expressed as a decimal, and r = fraction of collected balances deducted to meet reserve requirements. The annual collected balance, B, required for a given transaction is then derived from the following formula:

$$B = \frac{P}{i(1.00-r)}$$

Table 5

ACCOUNT ANALYSIS CHARGES FOR SELECTED CORRESPONDENT BANKING SERVICES

	Charge Per Transaction (Amounts in Dollars)		Annual Collected Balance Required Per Transaction in the Account Analysis (Amounts in Dollars)			Per Cent of Banks Charging in Account Analysis	Per Cent of Banks Requiring Direct Payment	Per Cent of Banks Not Charging	Per Cent of Banks Not Re- sponding or Making Only Irregular Charges
	Mode	Range	Average	Range	Median				
1. Annual Account Maintenance	18.00	6.00-720.00	1,193.26	161.64-22,500.00	539.76	76.62%	—	23.38%	—
2. Ledger Entries									
Credits	.10	.025-.50	3.29	.57-12.68	2.39	85.71	—	14.29	—
Debits	.07	.025-.16	1.88	.57-3.33	1.80	97.40	—	2.60	—
3. Items Deposited									
Not Encoded	.02 & .03	.006-.045	.58	.23-1.29	.56	100.00	—	—	—
Encoded	.01	.005-.033	.39	.13-.97	.33	100.00	—	—	—
4. Returned Items	.25	.05-1.60	10.13	1.35-34.26	7.22	68.83	—	31.17	—
5. Wire Transfers									
Outgoing	1.00 & 1.50	1.00-3.48	40.43	22.04-85.66	36.51	85.71	—	14.29	—
Incoming	1.00	.50-3.48	38.69	11.41-76.69	34.36	83.12	—	16.88	—
6. Securities Drafts	2.00	.06-5.60	44.77	1.50-136.30	31.75	38.96	1.30%	25.97	33.77%
7. Currency									
Furnished	{ .50/hr. .30/\$1,000	{ 4.00-10.25/hr. .01-.60/\$1,000	{ 146.46/hr. 6.27/\$1,000	{ 91.95-227.78/hr. 29.16-67/\$1,000 (Alternative Methods)	{ 132.79/hr. 6.24/\$1,000	{ 10.39 28.57 16.88	—	27.27	16.88
8. Rolled Coin									
Furnished	{ .02/roll .30/\$1,000	{ .003-.03/roll .10-.60/\$1,000	{ .50/roll 9.04/\$1,000	{ .16-1.84/roll 2.90-16.67/\$1,000 (Alternative Methods)	{ .44/roll 8.30/\$1,000	{ 38.96 5.19 20.78	1.30	27.27	6.49
9. Domestic Col- lection Items	{ 1.00	{ .23-5.13	{ 38.23 (Alternative Methods)	{ 5.51-113.06 (Alternative Methods)	{ 31.75	{ 53.25 6.49	5.19	25.97	9.09
10. Coupon Collections	{ .50	{ .03-2.35	{ 17.71 (Alternative Methods)	{ 64-60.65 (Alternative Methods)	{ 13.47	{ 40.26 6.49	1.30	29.87	22.08
11. Negative Col- lected Funds	—	—	6.12%	4.75%-8.00%	6%	29.87	—	41.56	28.57

NOTES: Average and median figures are based only on banks which have analysis charges. Banks with no charges are automatically excluded. The mode refers to the most common charge at correspondents while the median is a measure of the middle charge—half the correspondents charge more than the median figure and half less. Details may not add to totals due to rounding.

10/(Continued)

charge has been selected wherever reasonable. As a result of these adjustments, the tabulations slightly understate actual balance requirements in some instances.

A more serious difficulty involves the determination of fees for common transactions. Many correspondents charge for furnishing rolled coin, but the methods of charging vary considerably. Alternatives used among survey banks include a given price per roll or per bag, a flat charge per order, a charge based on the number of minutes required to prepare the order or on

the dollar amount of coin furnished, and combinations of these possibilities. Similarly, if banks differentiate items deposited, a higher charge is almost always levied for nonencoded items than for fully encoded items. Several banks, however, make no distinction for encoding but charge different amounts if the checks are drawn on local or nonlocal banks. Whenever it is possible to show alternative methods of charging without releasing actual figures for one or two banks, a separate entry has been included in the tabulations.

the only service for which all correspondents calculate charges is check clearings. Among survey banks, approximately one-third levy identical charges for amount encoded and nonencoded checks. Correspondents which differentiate the two generally charge one or more cents additional for items received which have not previously been encoded. Consequently, the average and median balance requirements for nonencoded items exceed those for encoded items by about 50 and 70 per cent, respectively. Correspondents uniformly stated that the proportion of items they are required to encode for respondents has declined greatly in recent years; most banks are presently sending encoded cash letters. In contrast to differentiating for encoding, three of the survey banks levy different charges for transit items drawn on local or nonlocal banks. These banks have been entered in the tabulations by averaging the two charges.

Most correspondents also include ledger entries in the account analysis. About one-half of the banks differentiate between credits and debits, with the charge for normal credits generally averaging about 150 per cent higher than the charge for normal debits. The collected balance requirements in the table refer only to standard transactions. A small group of banks have special charges for credits associated with cash letters. These fees are generally two or three times the amount for normal credits. Interestingly, a few banks have charges for debits to correspondent accounts but make no charge for credits.

Although most banks have identical charges for incoming and outgoing wire transfers of funds, a few have lower charges for funds received. Occasionally fees also vary with alternative methods of handling the advice of the transfer. A sizable group of correspondents base their fees on the wire transfer charges imposed by the Federal Reserve. Prior to August 1971, Federal Reserve Banks

charged \$1.50 for wire transfers in multiples of \$1,000 which involved nonmember banks. In mid-August, however, the Federal Reserve eliminated charges for transfers to nonmembers if the amount was in excess of \$1,000. As a result of these modifications, several banks at the time of the survey indicated that their wire transfer fees might be lowered or dropped altogether. The collected balance requirements for wire transfers shown in the table, consequently, may not be representative of the present situation.

Correspondents use a variety of methods to charge for currency and coin transactions. In addition to the alternatives previously noted, several banks have separate fees for currency received and provided, and for wrapped and unwrapped currency or coin. The most common methods of charging for currency provided are an hourly preparation charge or a fee proportional to the dollar amount of currency furnished. Similarly, coin charges are most frequently based on a specified price per roll or on the dollar amount of coin requested. These figures are shown in the table. Other possibilities not included in the averages are a rate per bag, a flat fee for each currency or coin order, and combinations of these rates. The indicated charges generally do not include an allowance for postage or insurance. Some correspondents simply pass these charges along to respondents while others include the cost as an expense in the account analysis.

As in the case of wire transfers, a significant group of correspondents base their analysis charges for currency and coin on those of the Federal Reserve. The Federal Reserve generally makes no direct charge for currency orders, but if rolled coin is requested, a small charge is made to both member and nonmember banks. The costs of insurance and transportation are absorbed by the Federal Reserve for shipments to member banks. However, these expenses are passed on for

shipments to nonmembers. Undoubtedly most respondents ordering currency and coin from correspondents are nonmembers.

A significant proportion of banks—44 per cent for currency transactions and 34 per cent for coin transactions—indicated that they either did not charge or charged only irregularly for such orders. Many of these correspondents are located in money market cities and have rarely been asked to furnish currency or coin.

Nearly one-half of the survey banks also have special charges for coupon collections. Most correspondents base the charge on the number of envelopes processed, but at least one bank assesses a fee proportional to the dollar value of the envelope. If banks have not established a special rate for coupons, the fee is normally the same as for a deposited item. Collected balance requirements for securities drafts and other collection items are also shown in the table. The number of miscellaneous charges included in the account analysis varies greatly among correspondents.

The major omission in the table is the schedule of fees relating to security purchases or sales, and safekeeping. About 60 per cent of the correspondents in the survey include such charges in their account analysis, but the wide variety of charges makes it impossible to present meaningful figures in summary form. Some banks, for example, have high analysis charges for purchases or sales, but minimal (or no) charges for safekeeping. By providing safekeeping for a nominal fee, these banks hope to stimulate purchases and sales through their bond departments. Safekeeping fees, moreover, may be based on the dollar amount held, the number of issues or receipts held, perhaps differentiated by the type of security, the number of coupons clipped, the number of in-out transactions, maintenance fees, transfers, etc. The omission of safekeeping charges should not be interpreted as suggesting that these fees are

unimportant; for some respondents they represent a major expense in the account analysis.

For most respondents the major proportion of analysis expenses are related to check clearing. The largest single entry in the account analysis is often the charge for the number of items deposited. Urban banks in particular tend to have very high analysis charges for check clearing. In the sample of 344 respondent banks, urban respondents typically sent 1½ to 3 times as many checks to correspondents as did similarly sized rural banks. Total fees for ledger entries and returned items, however, are normally quite small, despite the fact that the per item charges are comparatively high. While large variances were evident, the number of returned items and ledger entries, respectively, amounted to less than .08 per cent and .76 per cent of the number of items deposited. Nevertheless, the total balances required to compensate correspondents for performing transit services are substantial. For all but small rural banks, the sum of uncollected balances and balances required for transit services averaged over 70 per cent of the gross ledger balances of respondents at principal correspondents. For rural banks with deposits under \$10 million the comparable percentage was slightly over 50 per cent. The importance, on the other hand, of miscellaneous charges not related to transit services varied with both correspondents and respondents.

As with any set of averages, the figures in Table 5 are subject to a degree of distortion. Differences in the proportion of banks charging for specific services could bias the averages. Some banks, for example, have high account maintenance fees to hold down charges for normal services. Others do not levy charges for returned items but include the processing cost in the average charge for items deposited. Simple averages of the account maintenance fees or the items depos-

ited charges would make no allowance for the fact that prices at some banks are higher because these banks do not charge or have minimal charges for other services. An upward bias in the average charge might be introduced, but this distortion is unlikely to be great. The highest collected balance requirements often occur at major banks with the most sophisticated and lengthy lists of charges for services.¹¹ A more serious difficulty arises from the fact that the distributions of collected balance requirements tend to be badly skewed in the direction of higher charges. Many banks charge slightly below average fees, but a few banks charge considerably above the average. Consequently, the median balance requirements are consistently below the average. For analysis purposes the medians are undoubtedly a better measure of typical balance requirements than are the averages.

The group of services in the table are those for which account analysis fees have commonly been established. Many correspondents also charge for other miscellaneous transactions, but these vary from bank to bank. Examples of services for which comparatively few banks charge are computer reject items, credit investigations, special statements, F.D.I.C. insurance, payable through drafts, and management training programs. In this sense the list of services and charges is incomplete. Services for which actual payments are normally made by respondents, on the other hand, have also been omitted. These services would include computer fees, exchange costs for clearing non-par items, purchases or safekeeping of securities for bank customers, and portfolio analysis studies.

¹¹As the analysis charges were being gathered, a tendency for banks within a given city or region of the country to have very similar charges for basic services became apparent. Much of this geographical similarity is lost, however, in the collected balance requirements, which determine the effective charge for services. Eastern money market banks generally, but not without exception, often had the highest requirements in terms of collected balances for various services. Correspondents with low charges were scattered throughout the country.

Profit and Loss

The net profit or loss on a respondent's account is, of course, derived by subtracting the total analysis expenses from the earnings value of the account. The meaning of this figure, however, varies greatly among correspondents. Many correspondents build a profit margin into the account analysis by imputing an earnings allowance below the actual return on demand deposit funds, by adding a profit margin to the estimated costs of performing services, by making a deduction for required reserves which may exceed actual requirements, or by being able to collect checks more rapidly than the Federal Reserve float schedule would imply. Practices differ among banks and are tempered by competition.

Among the survey banks, approximately 50 per cent indicated that they had attempted to make allowance for profit. The before-tax margin generally ranged from 10 to 40 per cent. Other banks, however, often expressed uncertainty over their actual costs and profits or indicated that profit had not been considered in designing the account analysis. Despite these responses, many banks appear to benefit from granting an earnings allowance which is lower than the actual return on investable funds.

To the extent correspondents have previously made allowance for profits in their analysis computations, the profit or loss figure derived from the analysis statement does not represent profits in the normal sense of the term. Many correspondents feel that this figure considerably overstates profits because many important correspondent services, such as loan participations, are not included in the analysis. In any event, the practices of correspondents tend to be quite uniform in their behavior toward the net profit figure. If a bank's account shows a net profit, as most do, the correspondent will generally do nothing. If the account analysis regularly shows a

loss, the analysis statement may be sent to the respondent and a request made for the respondent to increase its compensating balance. In those comparatively rare instances in which the respondent does not comply, the account may ultimately be service charged the amount of the loss.

CONCLUDING OBSERVATIONS

Despite the nearly universal use of analysis statements by correspondent banks, comparatively few respondents use the figures as a guide to the appropriate size of their correspondent balances. One of the questions included in the 1969 survey of correspondent banking activity, conducted by the Federal Reserve Bank of Kansas City, asked respondents to specify the basis for determining the size of correspondent accounts. Among 2,100 midwestern and Rocky Mountain banks returning the questionnaire, 78.6 per cent stated balances were based on the respondent's estimated value of services rendered. About 17.5 per cent kept the minimum or average balance suggested by correspondents, and 4.0 per cent indicated reserve requirements and other factors were the primary determinants. The fact that comparatively few respondents rely on account analysis estimates to determine the optimal size of their compensating balances may be an indication that most correspondent accounts are profitable and, consequently, smaller respondents have rarely been confronted with analysis statements.

Correspondent banks generally emphasize the quality and availability of services, while the prices of these services are frequently not competitive issues. Nevertheless, the most unexpected finding of the present survey is the wide variance in the charges for typical services among banks. The range of collected balance requirements for different transactions, as shown in Table 5, is immense and is much larger than would be ex-

pected from a group of banks performing essentially identical services. Initial differences in the per item charges might largely be expected to cancel out by the time collected balance requirements are calculated but, instead, they are often accentuated. The outgoing wire transfer charge, for example, ranges from \$1.00 to \$3.48, a difference of about 250 per cent, while the collected balance requirements differ by nearly 300 per cent. The charge for encoded items varies from 0.5 cents to 3.3 cents, or by 560 per cent, but the collected balance requirement varies by as much as 650 per cent. In contrast, the maximum charge for returned items is 32 times the minimum charge, but the maximum collected balance requirement is only 25 times the minimum. Regardless of the realism of the charges, as long as such variances exist correspondent banks are likely to encounter great difficulty in convincing respondents of the validity of account analysis statistics.

Several years ago banks were criticized for the analysis which they performed on the accounts of corporations.¹² It was argued that the charges which were imputed for providing various services were unrealistically low as was the earnings credit. Passing judgment on the realism of the cost figures in the correspondent bank account analysis would be beyond the scope of this study, although it might be noted that the averages for basic services do not differ greatly from what would be expected from functional cost studies. However, the same criticism as formerly could probably be made about the earnings allowance at the majority of banks today. If smaller banks can earn a higher return by investing their funds in securities or by lending directly, strong pressures may develop to purchase

¹²James P. Furniss and Paul S. Nadler, "Should Banks Reprice Corporate Services?" *Harvard Business Review*, May-June 1966, pp. 95-105.

correspondent banking services solely for a fee.

Critics of the present system have often argued that greater efficiency in the distribution of banking resources would be promoted if correspondent banks were to substitute explicit charges for compensating balance requirements. Many small banks, it is maintained, have no knowledge of the cost of providing various services to them. If these costs were known, a bank would probably request only those services for which the potential revenue justified the expense. Price competition among correspondent banks, moreover, may be more effective than competition on the basis of the quality and availability of services offered.

Banks generally have been opposed to the introduction of a fee system. A survey conducted in 1963 found fewer than 6 per cent of the banks clearly in favor of fees, and more recent results from a survey conducted by the editors of *Burroughs Clearing House* found little change.¹³ Only 8 per cent of the banks favored a straight fee system. Nonmember

banks, which may count correspondent balances toward meeting reserve requirements, feel that the use of fees would increase the costs of providing services to customers. Other banks have argued that the prices of many services would be arbitrary. The average cost of clearing a check may be calculated with some degree of accuracy, but the cost and value of an account referral or a request for information would vary greatly with the specific circumstances. Opposition to fee arrangements is often encountered from correspondent bank officers who frequently feel the primary function of their department is to generate balances. A few, however, have adopted the view that profits may be increased under either approach. Despite these reservations, it is only a small step from the account analysis procedures to a listing of prices for correspondent services. Changes in traditional correspondent banking procedures will not come rapidly, but the seeds are in the wind. Newer correspondent services such as financial planning, portfolio reviews, EDP, and capital requirement studies are almost exclusively provided on a fee basis. Although it remains rudimentary, the account analysis represents a major step forward.

13/Harry V. Odle, "How Smaller Banks Rate Correspondent Services," *Burroughs Clearing House*, August 1971.

The Metropolitanization Of the Tenth District

By Glenn H. Miller, Jr.

One characteristic of U.S. population growth that receives continuing attention carries the unwieldy designation of "metropolitanization." This characteristic may be described as the long-run tendency of Americans to cluster in and around large urban centers.

Since it was desirable for various agencies of the Federal Government to be able to use the same geographic units in collecting and publishing information useful in studying this characteristic and various problems arising from it, the concept of "Standard Metropolitan Statistical Areas" (SMSA's) was developed. In general, the concept is of a metropolitan area as "an integrated economic and social unit with a recognized large population nucleus." A number of objective criteria of a quantitative nature have been established to make this concept operational for the gathering and publication of statistical data. The population nucleus must be at least one central city of no less than 50,000 population. The SMSA includes that city's county, and adjacent counties found to be metropolitan in character and socially and economically integrated with the county of the central city. Criteria for determining a county's "metropolitan character" relate primarily to attributes of the county as a place of work, or as a home,

for a specified concentration of nonagricultural workers.¹

Most simply, the metropolitanization of the U.S. population can be observed in the increasing proportion of all residents who live in SMSA's. In 1930 more than half (53 per cent) of all Americans lived in SMSA's; by 1970, the proportion had risen to about 68 per cent. Increasing concentration of population in metropolitan areas has been associated with rising levels of economic activity there, so that jobs and income have also tended to concentrate in the SMSA's. In 1969, for example, 76 per cent of all personal income received in the United States was earned in SMSA's, and only 24 per cent was earned in the much, much larger geographic area that makes up the non-SMSA part of the Nation.

The metropolitanization of population and economic activity has proceeded in such a way that its extent varies greatly from region to region across the country. Some regions, such as the seven states lying wholly or partly in the Tenth Federal Reserve District, were com-

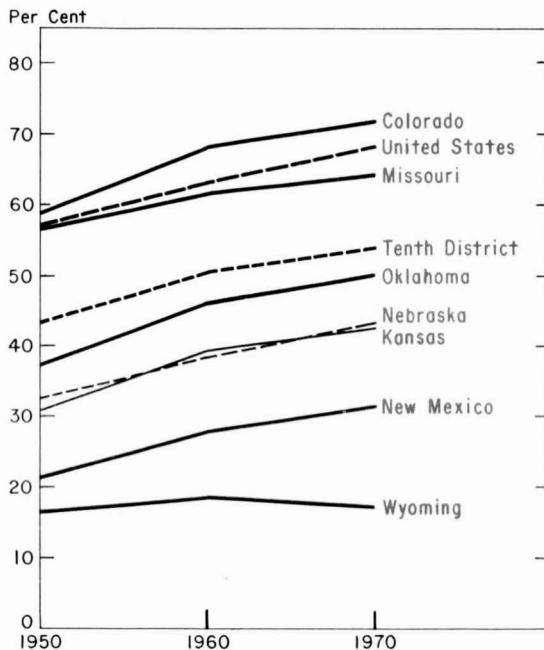
¹For more details, see U.S., Executive Office of the President, Bureau of the Budget, *Standard Metropolitan Statistical Areas: 1967*, Washington, D.C., 1967; and U.S., Department of Commerce, National Bureau of Standards, *Metropolitan Statistical Areas*, Federal Information Processing Standards Publication 8-1, Washington, D.C., July 1, 1971.

paratively late starters in the metropolitanization process.² In the case of the Tenth District states, factors such as the relative lateness of settlement and the economic structure of the area arising from its comparative advantages had much to do with this region's late start. There are also differentials in growth among the country's various SMSA's, reflecting not only the factors just mentioned but other factors as well, such as differences in competitiveness among areas, the changing relative importance of goods-producing and services-producing industries, and the distribution of such things as Federal military purchases. The outcome for the seven-state area has been both a slower pace and a currently lesser extent of metropolitanization than for the total United States. It was not until 1960 that the region's residents were divided half and half between SMSA's and non-SMSA areas; in 1970, 54 per cent of the people of the seven states lived in SMSA's.³ A similar differential exists with regard to economic activity: 60 per cent of the seven states' total personal income was earned in SMSA's in 1969, compared with 76 per cent of U.S. income in the same year.⁴

METROPOLITAN POPULATION GROWTH, 1950-70

Each of the seven District states had a larger share of its population residing in SMSA's in 1970 than in 1950, but only in Colorado and Missouri did metropolitan residents make up more than half the state's total resi-

Chart 1
PER CENT OF TOTAL RESIDENTS IN SMSA'S
1950-70



SOURCE: U.S. Department of Commerce, Bureau of the Census.

dent population (Chart 1). Using this yardstick alone, Colorado is clearly the most "metropolitan" of the Tenth District states, and the only one of the seven more "metropolitan" than the Nation as a whole.

In all of the District states the growth of population residing in SMSA's was slower in the 1960's than in the 1950's (Table 1). In the face of this pattern, only Oklahoma experienced a more rapid rate of total population growth in the 1960's. The "Sooner State" accomplished this feat because of a strong turnaround in the population growth pattern of its non-SMSA areas—from a 10.4 per cent decrease in the number of such residents from 1950 to 1960, to a 1.4 per cent increase from 1960 to 1970.

The major components of total population change are net natural increase and net migration. The latter is of interest because it is indicative of changes inspired by the desire for

2/The Tenth District includes Colorado, Kansas, Nebraska, Wyoming, most of Oklahoma and New Mexico, and the western tier of Missouri counties. Data in this article reflect state-wide developments for each of the seven states.

3/Several SMSA's include counties in more than one state, e.g., Kansas City, St. Louis, Ft. Smith, and Sioux City. State totals of SMSA income and population used in this article include data from only those metropolitan counties lying in the particular state.

4/Two adjustments of the official classification of SMSA's made by the U.S. Department of Commerce are used in this article: (1) The geographic definition of each SMSA is held constant over the entire period for which the estimates are presented; and (2) although Wyoming does not have an officially designated SMSA, Cheyenne is treated here as an SMSA. If all of Wyoming were treated as a non-SMSA area, there would be fewer exceptions to the generalizations made in this article about population and income change.

Table 1
POPULATION CHANGE AND NET MIGRATION,
1950-70, TENTH DISTRICT STATES,
METROPOLITAN AND NONMETROPOLITAN
RESIDENCE

	Population Change		Net Migration	
	1950-60	1960-70	1950-60	1960-70
	(In per cent)			
Colorado	32.4	25.8	12.3	12.3
Nonmetropolitan	2.5	11.3	-13.9	0.4
Metropolitan	53.4	32.7	30.9	17.9
Kansas	14.3	3.2	-2.3	-6.0
Nonmetropolitan	0.6	-2.2	-11.8	-8.1
Metropolitan	45.2	11.7	18.9	-2.7
Missouri	9.2	8.3	-3.3	—
Nonmetropolitan	2.9	0.8	-11.4	-2.9
Metropolitan	18.6	13.0	2.9	1.9
Nebraska	6.5	5.1	-8.8	-5.2
Nonmetropolitan	-3.3	-2.3	-16.4	-8.8
Metropolitan	27.0	17.0	7.0	0.6
New Mexico	39.6	6.8	7.7	-13.6
Nonmetropolitan	28.6	1.5	-1.3	-18.8
Metropolitan	80.0	20.4	40.3	—
Oklahoma	4.3	9.9	-9.8	0.6
Nonmetropolitan	-10.4	1.4	-21.1	-4.1
Metropolitan	29.1	19.9	9.4	6.3
Wyoming	13.6	0.7	-6.8	-11.9
Nonmetropolitan	11.1	2.3	-8.1	-9.3
Metropolitan	26.2	-6.3	-0.1	-23.6
Seven States	13.3	9.4	n.a.	n.a.
Nonmetropolitan	0.3	1.0	n.a.	n.a.
Metropolitan	31.3	17.9	n.a.	n.a.

n.a. Not available.
 SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-23, No. 7, Nov. 1962; and Series P-25, No. 461, June 28, 1971.

the improvement of people's economic situations. That is, differential migration rates result because people believe that moving will take them to areas offering more favorable employment and income opportunities.⁵ Table 1 reveals (with the exception of Wyoming) relatively high rates of migration into SMSA's in the 1950's—in some instances, rates high enough to offset net outmigration from a state's non-SMSA areas, thus making for overall net immigration for the state.

With the exception of New Mexico, all seven states saw relatively high rates of migration out of their non-SMSA areas in the 1950's.

⁵For a discussion of the relationship between employment opportunities and population migration, see this *Review*, May-June 1966, pp. 7-10.

Although in several states the tide of outmigration was stemmed somewhat in the following decade, only in Colorado was there net migration into a District state's non-SMSA area in the aggregate. This is not to say, of course, that certain non-SMSA counties in other states might not have experienced some net immigration. At the same time, aside from the special case of Wyoming, the net flow of migrants into SMSA's was slower in the 1960's in all District states, with New Mexico showing virtually no change and Kansas an actual outmigration from its SMSA's in the aggregate. In short, that the rate of metropolitanization of District population slowed in the 1960's, compared with the 1950's, is shown by both the population change and net migration data.

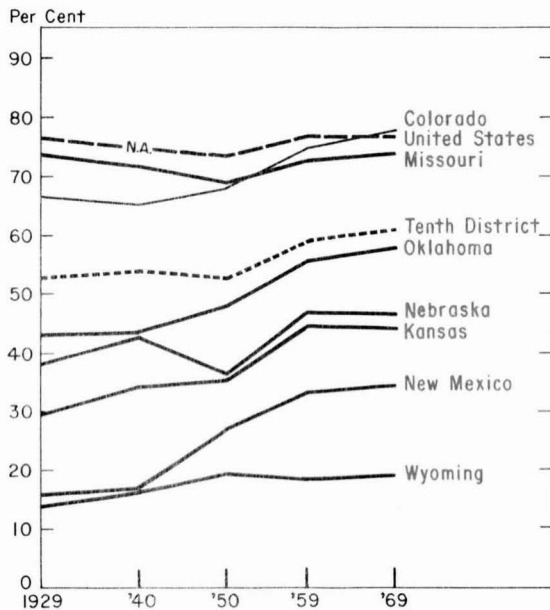
INCOME TRENDS IN METROPOLITAN AREAS

The notion that metropolitanization may be used to characterize geographic concentration of economic activity as well as the clustering of population has been suggested earlier in this article. In examining this aspect of metropolitanization, attention will be focused on the volume of economic activity.

Others have observed that "Regional growth in volume [of economic activity] might appropriately be measured by increases in population (i.e., number of persons, viewed as consumers and labor force), increases in total employment, and/or increases in total income produced or received within a given area."⁶ In this article, population change has been used, not as a measure of change in the volume of economic activity, but as a direct measure of metropolitanization. Fortunately, (1) estimates of total personal income for SMSA's and non-SMSA counties are available for selected years from the Regional Economics Division of the Office of Business Economics, U.S. Department of Commerce, and (2) "One of the most comprehensive and suggestive

⁶Harvey S. Perloff, et al, *Regions, Resources, and Economic Growth*. (Baltimore: The Johns Hopkins Press, 1960), p. 4.

Chart 2
PER CENT OF TOTAL PERSONAL INCOME
EARNED IN SMSA'S, 1929-69



SOURCE: U.S. Department of Commerce, Office of Business Economics.

measures of regional economic growth is provided by total personal income.⁷⁷ Thus, the metropolitanization of economic activity in the District will be discussed in terms of changes in the distribution of total personal income between SMSA's and non-SMSA areas.

While the proportion of total personal income earned in SMSA's has remained close to 75 per cent since 1929 for the whole United States, it has risen from about 52 per cent to 61 per cent for the seven-state region during the 40 years ending in 1969, with most of the increase coming since 1950 (Chart 2). A comparison of Charts 1 and 2 discloses—not surprisingly—that the states ranked the same in 1969 in tendency toward metropolitanization by the measure of

⁷⁷*Ibid.*, p. 23. It is recognized that these income estimates are simply an approximation of production or output data that are not, however, available for subnational areas.

concentration of economic activity as well as by that of population. In each state, the concentration of economic activity in SMSA's was greater than the concentration of population.

In the seven-state region, and in each of the states except Wyoming, the share of all economic activity located in SMSA's increased more in the 1950's than in the 1960's. Put another way, income earned in non-SMSA areas rose more rapidly relative to income earned in SMSA's in the 1960's than in the 1950's. This is made clearer by reference to Table 2, which includes the rates of change in total personal income earned in SMSA's and non-SMSA areas of the various states. In the states of Colorado, Kansas, Nebraska, and Oklahoma, SMSA income increased less rapidly, and non-SMSA income more rapidly, in the 1960's than in the 1950's; just the reverse was true in Wyoming. In Missouri, both SMSA and non-SMSA income grew more rapidly in the 1960's; while both grew more slowly from 1959 to 1969 in New Mexico. The relative changes in these latter two states were such, however, that the proportion of Missouri's and New Mexico's total personal income earned in SMSA's did not grow as much in the 1960's as in the 1950's.

Table 2
COMPOUND ANNUAL RATE OF CHANGE
IN TOTAL PERSONAL INCOME,
SMSA'S AND NON-SMSA AREAS,
TENTH DISTRICT STATES, 1950-69

	1950-59		1959-69	
	SMSA's	Non-SMSA Areas	SMSA's	Non-SMSA Areas
Colorado	8.5	4.7	7.7	6.0
Kansas	7.9	3.4	5.9	6.0
Missouri	6.0	4.1	6.4	5.7
Nebraska	6.8	1.7	6.5	6.6
New Mexico	11.6	7.9	5.4	4.9
Oklahoma	7.2	3.8	7.1	6.0
Wyoming	3.9	4.7	4.7	4.0
7 States	7.0	3.9	6.6	5.8
United States	6.5	4.7	6.9	6.8

SOURCE: U.S. Department of Commerce, Office of Business Economics.

Table 3
COMPOUND ANNUAL RATE OF CHANGE
IN EARNINGS BY SECTOR,
SMSA'S AND NON-SMSA AREAS,
TENTH DISTRICT, 1950-69

	1950-59		1959-69	
	SMSA's	Non-SMSA Areas	SMSA's	Non-SMSA Areas
Total Earnings	7.1	3.5	6.6	5.3
Farm Earnings	-5.0	-2.3	2.4	3.3
Government Earnings	9.4	8.9	8.7	7.8
Private Nonfarm Earnings	6.9	5.0	6.2	5.1
(Manufacturing)	(7.7)	(7.5)	(6.4)	(7.2)

SOURCE: U.S. Department of Commerce, Office of Business Economics.

Total personal income is too aggregative a measure of the volume of economic activity to permit further examination of the differential movements in SMSA and non-SMSA income. For this purpose, some disaggregation by industry structure is called for. Although the total personal income data are not available on an industry basis, total earnings are.⁸ In recent years, total earnings in the Nation have averaged around 80 per cent of total personal income, and changes in earnings generally parallel closely the changes in total personal income. These features of the total earnings data, along with their availability by major industrial divisions of the economy, make it possible to examine the industrial structure of subnational areas using them.

Because of both the special character of the Tenth District as an agricultural area (in 1969 farming was more than twice as important a source of earnings in the District as in the rest of the United States) and the farm-nonfarm nature of the division of the area into its SMSA and non-SMSA parts, the extent and growth of farm earnings should be

⁸Total personal income is composed of total earnings (wage and salary disbursements, other labor income, and proprietors' income—both farm and nonfarm), property income (rent, dividends, and interest), and transfer payments (social security payments, unemployment compensation, etc.)—less personal contributions for social insurance.

expected to be an important element in explaining differential growth in SMSA and non-SMSA income. Thus, when farm earnings for the whole seven-state area declined in the 1950's at a compound annual rate of 2.5 per cent, the impact was much greater on total earnings of the non-SMSA areas (Table 3). Then the recovery of farm earnings in the 1960's (along with slower growth in the government and private nonfarm sectors of the SMSA's) contributed heavily to lessening the spread between the growth rates in economic activity of the SMSA's and the non-SMSA areas.

Farm earnings were a declining share of total earnings for both SMSA's and non-SMSA areas from 1950 to 1969. For non-SMSA's, the decline was from 35 per cent to 17 per cent. On the other hand, earnings from the government sector were a larger share of total earnings for both SMSA's and non-SMSA areas in 1969 than in 1950. By the later year, earnings from government were also a relatively more important part of total earnings in the non-SMSA areas than in the SMSA's. Earnings in the government sector grew faster in both decades than earnings in either the farm or the private nonfarm sectors. One re-

Table 4
EARNINGS BY SECTOR AS A PER CENT
OF TOTAL EARNINGS,
SMSA'S AND NON-SMSA AREAS,
TENTH DISTRICT, 1950-69

	1950		1959		1969	
	SMSA's	Non-SMSA Areas	SMSA's	Non-SMSA Areas	SMSA's	Non-SMSA Areas
Total Earnings	100.0	100.0	100.0	100.0	100.0	100.0
Farm Earnings	2.6	35.1	0.9	20.9	0.6	17.3
Government Earnings	11.6	11.6	14.1	18.3	17.2	23.2
Private Non-farm Earnings	85.7	53.3	85.0	60.8	82.2	59.5
(Manufacturing)	(24.3)	(7.3)	(25.7)	(10.2)	(25.2)	(12.3)

SOURCE: U.S. Department of Commerce, Office of Business Economics.

sult was that, by 1969, government was a more important source of earnings in the non-SMSA areas than was farming (Table 4).

With farming, a slow-growth industry, making up a significant fraction of the non-SMSA areas' total earnings, extremely rapid growth in its other sectors is necessary if it is to match the earnings growth of the SMSA's. In the 1950's and 1960's, however, earnings from government and private nonfarm earnings both grew more slowly in the non-SMSA areas than in the SMSA's. But manufacturing earnings did grow faster in the non-SMSA areas than in the SMSA's in the 1960's.

Relative to total earnings, private nonfarm earnings became slightly less important in the SMSA's, and slightly more important in the non-SMSA areas, from 1950 to 1969. During those years, manufacturing earnings were only slightly more than unchanged as a share of total earnings in the SMSA's (about

one-fourth), but they became of considerably more relative importance in the non-SMSA areas (moving from 7 per cent to 12 per cent).

In the aggregate, then, the last two decades have witnessed an increase in the dominance of the Tenth District economy by the SMSA's, in terms of the location of the volume of total economic activity. In 1950, 64 per cent of all private nonfarm income of the seven states was earned in the SMSA's; in 1969, the proportion was 70 per cent. The share of the SMSA's in the earnings from the government sector also rose, from 53 per cent in 1950 to 56 per cent in 1969. Even in manufacturing, where in the 1960's non-SMSA growth was considerably more rapid than that of the SMSA's, 77.6 per cent of the District's manufacturing earnings in 1969 originated in the SMSA's—down exactly one percentage point from 1950.

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