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The Property Tax
And School Finance

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> We have determined that ... the California
> public school financing system, with its
> substantial dependence on local property
> taxes and resultant wide disparities in school
> revenue, ... invidiously discriminates against
> the poor because it makes the quality of a
> child's education a function of the wealth of
> his parents and neighbors .... We have
> concluded, therefore, that such a system
> cannot withstand constitutional challenge and
> must fall before the equal protection clause.
>
> **Supreme Court of California**
> **Serrano v. Priest, 1971**

The California Supreme Court, by invalidating the existing system of financing public education in that state, has set in motion a process that may fundamentally alter state and local fiscal practices throughout the country. In the year since the *Serrano* decision, state and Federal courts in several other states have followed California's lead, declaring that reliance by school systems on the local property tax violates the equal protection clause of the Fourteenth Amendment to the U. S. Constitution and similar provisions of state constitutions.[1] If the U. S. Supreme Court, which will make the final determination on the issue, agrees with the majority in *Serrano*, state governments in 49 of the 50 states will be legally obligated

to restructure their school finance systems (Hawaii uses a statewide property tax to finance public education).

The California Supreme Court gave examples of the extreme disparities in educational finance existing among various California school districts. In 1968-69, the Beverly Hills school district was able to pay for an expenditure per student of $1,232 with a property tax rate of $2.38 per $100 of assessed value, while in the Baldwin Park district a tax rate of $5.48 was required to finance expenditures of only $577 per student. The reason for the discrepancy is that the Beverly Hills district, with its expensive homes and ample business property on the tax rolls, had an assessed value per student of $50,885, while in Baldwin Park the assessed value per student was $3,706. Equalization money from the state and Federal governments had the effect of reducing somewhat the disparity between the two districts, but came nowhere near to eliminating it, as the expenditure and tax rate figures indicate.

The California Supreme Court's legal argument was that, in view of the disparities in assessed value per pupil, it was impossible as a practical matter for the poorer districts to raise property tax rates so as to generate the same revenue per student as the wealthier districts could obtain even with a low tax rate. Wide disparities in expenditure per student were the obvious result. Thus, the Court held, the California school financing system in effect classified students according to the wealth of their

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[1] One such suit, which in August 1972 invalidated the Kansas system of school finance, was filed on behalf of students in the De Soto school district in Johnson County.

parents and neighbors, and provided better education for those students with wealthier parents and neighbors. Such a classification, not being necessary to the purpose of public education, was viewed by the Court as a denial to the poor of the equal protection of the law. This argument, while invalidating the California school finance system, does not establish a clear criterion by which different systems may be judged to be in conformance with or in violation of the equal protection clause. Presumably, the U. S. Supreme Court will supply a more specific guideline.

However the U. S. Supreme Court ultimately resolves the legal issue, the voters in many areas (including the Kansas City area) have already returned a negative verdict on the local property tax by regularly voting down levy increases. Moreover, many observers have concluded that existing methods of school finance need basic overhaul. The common element of proposed changes in school finance methods is that all recommend decreased reliance on local property taxes. In order to evaluate these proposals and compare them to the present system, it is necessary to obtain relatively accurate information about the nature and extent of financial disparities among school districts induced by general reliance on the local property tax. This article reports the findings of such a study for school districts in the Kansas City Standard Metropolitan Statistical Area (SMSA).

THE DETERMINANTS OF FINANCIAL DISPARITIES AMONG SCHOOL DISTRICTS[2]

The basic measure of financial support for the provision of educational services is current

expenditure per student. Accordingly, this study will focus on variations among school districts in current expenditure per student and its determinants. Current expenditure includes all operating costs directly related to education, but excludes such items as food services, community services, student body activities, debt service, and capital outlays. The exclusion of capital outlays is particularly important, since otherwise the expenditure figures would exaggerate the level of educational services provided in school districts undertaking new construction.

The relevant measure of a school district's wealth, and therefore a major determinant of current expenditure per student, is assessed value per student.[3] This variable, which is computed by dividing the total assessed value of all taxable properties within the school district by the number of students whose education must be financed, determines the tradeoff faced by each school district between expenditure per student and the property tax rate. A school district with high assessed value per student can finance high expenditure per student with a low property tax rate, while a district with low assessed value per student must tax itself at a high rate to generate even a comparatively small revenue per student. The figures for the Beverly Hills and Baldwin Park school districts in California exemplify the tax and expenditure patterns that can result from grossly unequal assessed values per student among school districts.

Besides assessed value per student and the tax rate, two other factors influence current expenditure per student: the availability of state and Federal money to supplement local property tax revenues, and the amount of noncurrent expenditure per student. The variable used to measure state and Federal aid is the ratio of total expenditure by a school district to the school tax revenues generated in that district,

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2/ As background, over half the funds spent on public education in the Kansas City area are raised by means of the local property tax, with most of the remainder supplied by the state and Federal governments under a variety of programs. About two-thirds of the revenue generated by the local property tax goes to the schools, with the rest financing counties, municipalities, and other local government units. The operation of the local property tax is easily summarized: within each school district all business, residential, and personal property is assessed by the county, theoretically at 30 per cent of its market value, and is entered on the tax rolls. The tax rate to be applied against these assessed values is determined by the voters of each school district, subject to restrictions imposed by the state.

3/ In fact, the magnitude of variations in assessed value per student is often used as a summary indicator of the extent of inequity among districts in school finance.

since the difference between these two figures largely represents state and Federal aid.[4] The other determinant, noncurrent expenditure, is expressed as a ratio of current expenditure to total expenditure. Differences among school districts in the current/total expenditure ratio largely represent varying rates of construction, since capital outlay is the most important item of noncurrent expenditure.

The reason for expressing the determinants in ratio form, as formulated above, is that under this specification the product of the determinants is exactly equal to current expenditure per student.[5] Because of this equality, any variation among school districts in current expenditure per student can easily be traced back to variations in (1) assessed value per student, (2) the school tax rate, (3) the ratio of school district expenditure to school tax revenues, and (4) the ratio of current to total school district expenditure.

Analysis of these variables alone, though revealing, does not yield an adequate understanding of the determinants of current expenditure per student, as the discussion in the following section will make clear. A further breakdown of one of these variables, assessed value per student, into three other determinants will be particularly useful. The determinants of assessed value per student are median housing value, the size of the school-age population, and the amount of business property on the tax rolls. Median housing value is a major determinant of assessed value per student, since

residential property accounts for a large proportion of the total tax base in most school districts. The relative size of the student population is also important, as even a school district with high median housing value may find its advantage offset if the school-age population is relatively large. Finally, the value of business property must be considered because the ample availability of such property can raise total assessed value per student to several times the residential assessed value per student.[6]

As before, it is useful to formulate these determinants so that the variable to be explained—in this case, assessed value per student—equals the product of the determinants. The relative size of the school-age population is measured by the ratio of the number of households to the number of students (or, equivalently, the inverse of the average number of students per household). The measure of the availability of business property is specified as the ratio of total assessed value to total residential value. The three determinants of assessed value per student, then, are median housing value (variable 5), the average number of households per student (variable 6), and the ratio of total assessed value to total residential value (variable 7).[7]

In order to calculate the numerical magnitudes of all the determinants of current expenditure per student in the Kansas City SMSA, it was necessary to obtain measures of the following variables for each school district: current school district expenditure, total school district expenditure, the number

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4/ Local sources of school district revenue other than the property tax, such as proceeds from bond issues and intangibles taxes, are thus implicitly grouped with state and Federal payments.

5/ To see this, it is noted that the school tax rate equals the ratio of school tax revenues to total assessed value. Making this change, the relation between current expenditure per student and its determinants becomes

$$\frac{\text{Current Expenditure}}{\text{Number of Students}} = \overset{(1)}{\frac{\text{Total Assessed Value}}{\text{Number of Students}}} \times \overset{(2)}{\frac{\text{School Tax Revenue}}{\text{Total Assessed Value}}}$$

$$\times \overset{(3)}{\frac{\text{Total Expenditure}}{\text{School Tax Revenue}}} \times \overset{(4)}{\frac{\text{Current Expenditure}}{\text{Total Expenditure}}}.$$

By observing the cancellation of terms, it is apparent that current expenditure per student equals the product of the determinants. The variable numbers are those of Table 1.

6/ Personal property is included with business property in the nonresidential portion of the tax base.

7/ If median housing value is approximately equal to average housing value, the relation between assessed value per student and its determinants may be expressed as

$$\frac{\text{Total Assessed Value}}{\text{Number of Students}} = \overset{(5)}{\frac{\text{Total Residential Value}}{\text{Number of Households}}}$$

$$\times \overset{(6)}{\frac{\text{Number of Households}}{\text{Number of Students}}} \times \overset{(7)}{\frac{\text{Total Assessed Value}}{\text{Total Residential Value}}}$$

Again, the cancellation proves that assessed value per student equals the product of its determinants. The variable numbers are those of Table 1.

of students, total assessed value, the school tax rate, the median value of homes in the school district, and the total number of households in the district. Data were collected for the 38 school districts in the Kansas City SMSA which have high schools (the 16 districts without high schools were excluded because several of the computed variables proved to be inaccurate for small school districts). The first five variables listed above were supplied by state and county authorities in Kansas and Missouri, while the last two were calculated from data contained in the 1970 Census of Housing. These variables are generally comparable to those used in an earlier study of the burden of the property tax by income class.[8] The data measuring current expenditure per student and its determinants, as specified above, are shown in Table 1.

DISPARITIES IN SCHOOL FINANCE

The figures in Table 1 show that there is considerable variation in current expenditure per student and its determinants among school districts in the Kansas City area. Current expenditure per student ranges from $459 to $817, and the tax rate varies between 0.700 per cent and 1.850 per cent. The range of variation in assessed value per student, $19,700 to $93,300, is considerably wider. The disparity between the latter figures, however, is much less

than that between assessed value per student in Beverly Hills and Baldwin Park, the California school districts used in the *Serrano* decision to exemplify disparities in school finance. The richest Kansas City area district has approximately four times more assessed value per student than the poorest, compared with the 14 to 1 ratio between assessed value per student in Beverly Hills and Baldwin Park.[9]

The ratio between the largest and smallest assessed values per student, however, is not a very efficient measure of variation since it makes use of only two observations. A better measure of the degree of variation in a set of data is the coefficient of dispersion, with higher values of this statistic indicating greater variation around the average.[10] Coefficients of dispersion of assessed value per student, the tax rate, and current expenditure per student for the Kansas City area are calculated from Table 1 and displayed in Table 2. Also shown for comparison are similar figures for school districts in the six New England states, drawn from a study of disparities in school finance in New England.[11] With one exception, the coefficients of dispersion in Kansas City for all three variables are as low as or lower than in any of the New England states, indicating that assessed value per student, the school tax rate, and current expenditure per student are more nearly equal in Kansas City school districts than in New England school districts.

8/ See LeRoy and Brockschmidt, "Who Pays the School Property Tax?" this *Review*, November 1972, where the method of estimating median housing value by school district is briefly summarized.

One minor modification of the data, concerning the variable measuring the ratio of total to residential assessed value, was required. The data measuring total assessed value relfect only a small proportion of the market value of the properties on the tax rolls, due to the practice prevailing in Missouri and Kansas (and most states) of assessing property at a fraction of its estimated market value. However, the measure of the value of residential property, drawn from the Census of Housing, is an estimate of the full market value of housing (it was necessary to use Census data to estimate housing values because available assessed value data are not broken down by residential and nonresidential properties). If no allowance for this discrepancy were made, the ratio of these two variables would be a seriously distorted measure of the availability of business property to supplement residential property on the tax rolls. To correct the discrepancy, the measures of assessed value were put on a full value basis by multiplying by five, since the prevailing assessed-to-market ratio in the Kansas City area is approximately 20 per cent. In order to avoid distortion in the estimate of total property taxes collected, the effective property tax rate was then computed by dividing the actual rate by five.

9/ The Pleasant Valley School District, with an assessed value per student of almost $6 million (at full valuation), is not considered in this study because it is an elementary district.

10/ The coefficient of dispersion is defined as the standard deviation divided by the mean. The simplest interpretation of the standard deviation, which is the most frequently used measure of dispersion, is that in a normal statistical sample about 68 per cent of the observations lie within one standard deviation of the mean. Here, however, the standard deviation is divided by the mean because a measure of relative rather than absolute dispersion is desired. As an example of this calculation, the mean and standard deviation of current expenditure per student in Kansas City area schools are $597 and $94, respectively, implying a coefficient of dispersion of 0.16. These statistics indicate that in about 68 per cent of the school districts current expenditure per student differs from the overall mean by less than $94, which is 16 per cent of the mean.

11 / Steven J. Weiss, *Existing Disparities in Public School Finance and Proposals for Reform*, Research Report No. 46, Federal Reserve Bank of Boston, February 1970.

Table 1
CURRENT EXPENDITURE PER STUDENT AND ITS DETERMINANTS, 1970-71

School District and Enrollment	Current Expenditure Per Student	(1) Assessed Value Per Student*	(2) School Tax Rate* (In per cent)	(3) Total Expenditure/ School Tax Revenue	(4) Current Expenditure/Total Expenditure	(5) Median Housing Value	(6) Households Per Student	(7) Total/ Residential Value
Cass County, Mo.								
1. Belton - 5,131	$459	$19,685	0.970	2.84	0.85	$14,459	0.63	2.17
2. Raymore-Peculiar - 1,390	490	30,908	0.970	2.14	0.76	13,494	1.06	2.17
3. Pleasant Hill - 1,420	546	37,589	0.790	2.21	0.83	12,420	1.14	2.66
4. Westline - 619	524	36,135	0.900	2.13	0.75	9,237	0.89	4.39
5. Harrisonville - 2,009	571	39,353	0.930	2.07	0.75	13,185	1.14	2.63
6. Drexel - 351	579	43,629	0.850	2.02	0.77	8,574	0.78	6.54
7. Archie - 503	515	46,816	0.700	2.05	0.77	8,497	1.10	5.00
Clay County, Mo.								
8. Smithville - 959	589	46,922	0.906	1.89	0.74	13,759	1.27	2.68
9. Kearney - 1,024	553	41,040	0.910	2.45	0.60	13,146	0.76	4.10
10. North Kansas City - 23,889	607	53,447	0.940	1.90	0.64	16,610	1.17	2.76
11. Excelsior Springs - 3,531	520	34,617	0.800	2.33	0.81	11,050	1.05	2.99
12. Liberty - 4,049	554	36,202	1.160	1.63	0.81	15,179	0.78	3.06
Jackson County, Mo.								
13. Fort Osage - 4,987	496	24,632	0.960	2.81	0.75	15,082	1.04	1.57
14. Blue Springs - 3,867	477	34,786	1.090	1.99	0.63	19,384	0.76	2.32
15. Grain Valley - 616	528	32,124	0.976	2.63	0.64	13,966	1.51	1.52
16. Oak Grove - 1,128	486	24,552	0.960	2.87	0.72	12,136	1.00	2.02
17. Lee's Summit - 6,378	576	46,105	1.040	1.74	0.69	17,150	1.06	2.54
18. Hickman Mills - 15,419	523	29,311	1.198	2.02	0.74	17,543	0.90	1.85
19. Raytown - 16,576	549	33,059	1.150	1.81	0.80	17,627	1.13	1.65
20. Grandview - 6,546	536	35,547	1.162	1.73	0.75	16,580	0.83	2.59
21. Lone Jack - 322	558	35,438	0.910	2.16	0.80	16,085	1.82	1.21
22. Center - 6,087	685	69,054	0.890	1.40	0.80	18,573	1.62	2.30
23. Independence - 17,494	513	31,548	0.940	2.39	0.72	15,260	1.30	1.59
24. Kansas City - 73,656	739	65,438	0.846	1.70	0.78	10,388	1.83	3.44
Platte County, Mo.								
25. North Platte - 855	585	47,897	0.862	2.60	0.55	10,279	1.13	4.11
26. West Platte - 1,035	586	50,009	0.870	1.67	0.81	9,495	0.99	5.35
27. Platte City - 1,410	673	52,670	0.858	1.80	0.83	16,060	1.39	2.37
28. Park Hill - 6,256	589	43,948	1.020	1.65	0.80	19,439	0.90	2.51
Wyandotte County, Kans.								
29. Kansas City - 32,872	613	43,125	1.280	1.38	0.81	10,809	1.62	2.47
30. Turner - 5,305	614	28,987	1.486	1.71	0.84	12,106	0.68	3.51
31. Piper - 529	817	42,318	1.388	1.59	0.88	13,359	1.48	2.14
32. Bonner Springs - 2,259	807	35,917	1.850	1.49	0.81	12,025	1.12	2.68
Johnson County, Kans.								
33. Stanley - 832	739	93,357	1.256	1.00	0.63	14,446	1.17	5.53
34. Spring Hill - 744	684	41,938	1.366	1.46	0.82	13,527	1.08	2.87
35. Gardner - 1,329	761	44,602	1.482	1.28	0.90	12,003	1.32	2.82
36. De Soto - 1,798	652	26,695	1.706	1.80	0.80	11,100	0.94	2.56
37. Shawnee Mission - 43,694	726	50,871	1.532	1.21	0.75	21,934	1.25	1.85
38. Olathe - 4,477	680	47,990	1.468	1.25	0.77	14,831	1.12	2.89

* Adjusted to full valuation.

SOURCES: Median value of housing and number of households were calculated from U. S. Bureau of the Census; *U. S. Census of Housing, 1970. Second Count Summary Tape—Kansas City SMSA Census Tracts.* The other data were obtained from state and county authorities.

Table 2

COEFFICIENTS OF DISPERSION

	Current Expenditure Per Student	Assessed Value Per Student	Tax Rate
Maine	.18	1.07	.44
Massachusetts	.21	.94	.31
Vermont	.16	.75	.39
New Hampshire	.21	.69	.44
Rhode Island	.13	.52	.28
Connecticut	.16	.38	.31
Kansas City SMSA	.16	.33	.25

SOURCES: Weiss, *Existing Disparities in Public School Finance and Proposals for Reform*, p. 17, and Table 1.

Table 2 also shows that in both Kansas City and New England school districts the dispersion of assessed value per student is much greater than the dispersion of current expenditure per student. The necessary implication is that variations in assessed value per student are at least partly counterbalanced by variations in the other determinants of current expenditure per student. One possible offset to variations in assessed value per student is the tax rate. The correlation coefficient, a statistical measure of the direction and degree of association between two variables, was used to determine whether the tax rate plays this role.[12] To do this, the correlation coefficients between assessed value per student, the tax rate, and current expenditure per student were calculated for Kansas City area school districts. These correlation coefficients are displayed against similar data for New England school districts in Table 3.

Assessed value per student is seen to be positively correlated with expenditure per student in both Kansas City and New England, as expected. Except for this similarity, however, there is a sharp contrast between the Kansas City school districts and New England districts.

12/ If two variables usually behave similarly, with one variable typically high (low) when the other is high (low), then the correlation coefficient will be positive, reaching a possible maximum of +1.00 if the two variables always vary exactly in proportion. If a high value for one variable is typically associated with a low value for the other variable, the correlation coefficient will be negative, reaching -1.00 in the case of a perfect inverse relationship. If there is no perceptible relation between two variables, the correlation coefficient will be approximately zero.

In New England, assessed value per student is inversely related to the tax rate while in the Kansas City districts, the correlation coefficient is approximately zero. These figures demonstrate that the tax rate tends to offset variations in assessed value in New England school districts, but does so only to a slight extent in the Kansas City area. The contrast between New England school districts and Kansas City area school districts carries over to the correlation between the tax rate and current expenditure per student. In New England, the correlation coefficients are scattered around zero, while in Kansas City there is a strong positive correlation between the tax rate and current expenditure (+0.60).

The key to the interpretation of these divergent patterns of behavior is that, as noted, variations in assessed value per student are low in Kansas City relative to New England. Because the variations in assessed value per student in New England are relatively wide, school districts with low assessed value per student are virtually compelled to levy taxes at a high rate in order to finance even low levels of expenditure per student, while districts with high assessed value per student can afford high expenditure per student without sacrificing a low tax rate. In Kansas City, by contrast, the lower

Table 3

CORRELATIONS BETWEEN ASSESSED VALUE PER STUDENT, CURRENT EXPENDITURE PER STUDENT, AND THE TAX RATE

	Assessed Value Per Student and Current Expenditure Per Student	Assessed Value Per Student and Tax Rate	Tax Rate and Current Expenditure Per Student
Maine	.54	- .58	- .06
Massachusetts	.56	- .60	.04
Vermont	.40	- .56	.11
New Hampshire	.57	- .69	.00
Rhode Island	.55	- .56	.10
Connecticut	.54	- .68	.10
Kansas City SMSA	.57	- .08	.60

SOURCES: Weiss, *Existing Disparities in Public School Finance and Proposals for Reform*, p. 21, and Table 1.

Table 4
CORRELATIONS BETWEEN CURRENT EXPENDITURE PER STUDENT AND ITS DETERMINANTS

Assessed Value Per Student	School Tax Rate	Total Exp./ Tax Revenue	Current Exp./ Total Exp.	Median Housing Value	Households Per Student	Total/ Residential Value	
.57	.60	-.75	.30	.00	.44	.11	Current Exp. Per Student
	-.08	-.61	-.20	.06	.42	.46	Assessed Value Per Student
		-.57	.28	.16	-.08	-.19	School Tax Rate
			-.31	-.21	-.23	-.18	Total Exp./Tax Revenue
				-.12	.12	-.16	Current Exp./Total E..p.
					.03	-.61	Median Housing Value
						-.31	Households Per Student

dispersion in assessed value per student means that school districts do not have to use the school tax rate primarily to offset variations in assessed value per student. School districts in Kansas City with high tax rates are likely to be those which prefer a high level of expenditure per student, rather than those with low assessed value per student. This would explain the high correlation of the tax rate with current expenditure and its low correlation with assessed value.[13]
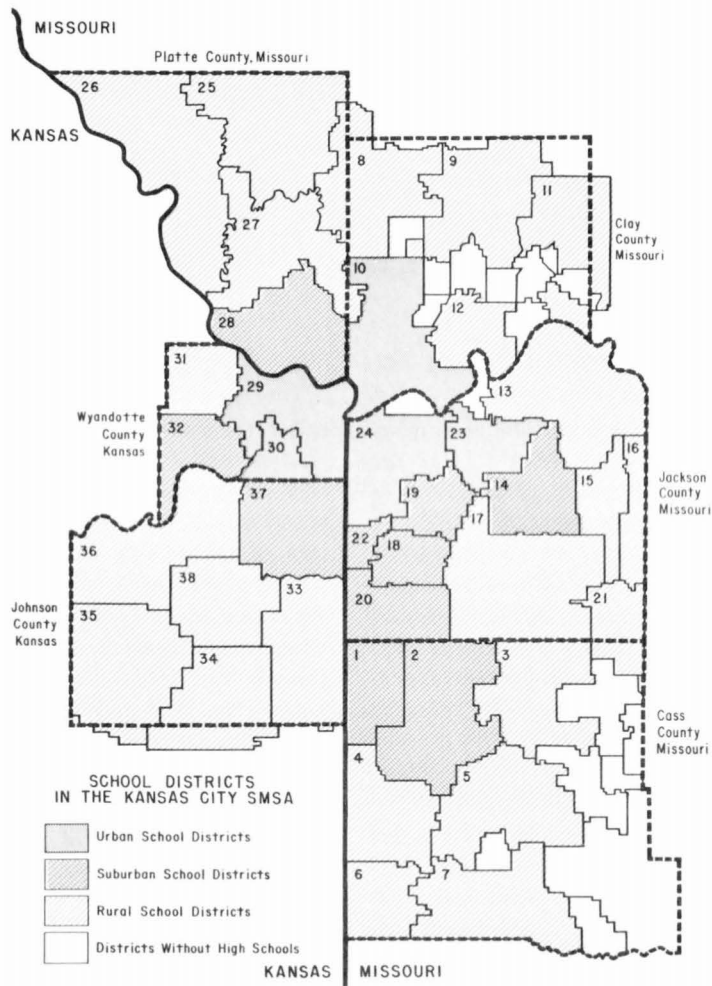
DETERMINANTS OF CURRENT EXPENDITURE

In interpreting the magnitude of financial disparities among school districts, it was found useful in the preceding section to examine the correlations between current expenditure per student and two of its determinants—the tax rate and assessed value per student. It was seen that if the determinants of current expenditure per student are negatively correlated with each

other, the dispersion of current expenditure per student will be low relative to the dispersion of the determinants. For example, in New England school districts, and to a much lesser extent in Kansas City school districts, it was seen that the negative correlation between assessed value per student and the tax rate implied that variations in the tax rate acted to offset variations in assessed value per student, resulting in lower dispersion in current expenditure per student than in assessed value per student or the tax rate. On the other hand, if two determinants are positively correlated they will reinforce each other and promote high dispersion in current expenditure per student.

These considerations suggest that the study of disparities in current expenditure per student may usefully be pursued by examining the correlations between current expenditure per student and *all* its determinants. The correlation matrix in Table 4, which shows the correlation coefficient between current expenditure per student and each of its determinants, and also the correlation between each pair of determinants, is convenient for this purpose. Each row and column of the matrix shows the correlation coefficients between a particular variable and each of the other variables. For example, the first row contains the correlation coefficients between current expenditure per student and each of its determinants. By examining the correlation coefficients in this row, it is possible to determine whether school districts with high

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13/ Differences between school finance practices in Missouri and Kansas may be partly responsible for the high positive correlation between the tax rate and expenditure per student. The data in Table 1 support the conclusion that, compared to Missourians, Kansans (1) prefer higher expenditure per student (average expenditure per student in the Kansas districts lying within the Kansas City SMSA was $703, compared to $554 in the Missouri districts), and (2) rely relatively more on the local property tax (the total expenditure/total property tax revenue ratio averaged 1.40 in Kansas and 2.06 in Missouri). As a result of (1) and (2), the property tax rate averages considerably higher in Kansas than Missouri (1.472 per cent compared to 0.941 per cent). Thus the scatter between Kansas and Missouri data would induce a positive correlation between the tax rate and expenditure per student.

Such inferences about differences between the Kansas and Missouri school finance systems should be regarded as very tentative, however, since the portions of Kansas and Missouri in the Kansas City SMSA may not be representative of the two states. Also, there are institutional and accounting differences between the two states.

**SCHOOL DISTRICTS
IN THE KANSAS CITY SMSA**

Urban School Districts

Suburban School Districts

Rural School Districts

Districts Without High Schools

current expenditure per student typically also have high assessed value per student, tax rate, and so forth for all the variables.[14] Similarly, the row and column associated with assessed value per student show the correlations of that variable with each of the other variables. The same pattern follows for the other variables.

The coefficients of correlation shown in the first row of Table 4 allow identification of the typical financial characteristics of school dis-

tricts with high expenditure per student. As noted previously, school districts with high expenditure per student tend to have both high assessed values per student and high tax rates. This is indicated in Table 4 by correlation coefficients of +0.57 and +0.60, respectively. In addition, the correlation coefficient of -0.75 between current expenditure per student and the ratio of total expenditure to property tax revenue implies that school districts with high current expenditure per student typically generate a high proportion of their total revenue from the property tax, receiving a correspondingly small proportion of their budget from state

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14/ The financial characteristics of school districts with low current expenditure per student will typically be the opposite of those with high current expenditure per student, and the same applies for the other variables.

Table 5
URBAN, SUBURBAN, AND RURAL AVERAGES
FOR CURRENT EXPENDITURE AND ITS DETERMINANTS

	Current Expenditure Per Student	=	Assessed Value Per Student ($ thousands)	x	School Tax Rate (In per cent)	x	Total Expenditure / Tax Revenue	x	Current Expenditure / Total Expenditure
Urban Average	$613		42.4		1.073		1.79		0.75
Suburban Average	574		36.3		1.155		1.78		0.77
Rural Average	593		40.5		1.017		1.91		0.75
Overall Average	591		39.6		1.059		1.86		0.76

SOURCE: Table 1.

and Federal sources.[15] Another finding is that such districts do not tend to have high median housing values. In fact, the correlation coefficient between current expenditure per student and median housing value is 0.00, indicating that there is no association whatever between the two variables. This result may appear surprising, since it might be expected that residents of school districts with high median housing values would be able to afford a greater-than-average investment in education.

The other rows of Table 4, which show the correlation coefficients among the determinants of current expenditure per student, help to explain the zero correlation between current expenditure per student and median housing value. It is seen that school districts with high median housing values typically have relatively little business property on the tax rolls (this is indicated by the -0.61 correlation coefficient between median housing value and the ratio of total to residential assessed value). As a result of this offset, school districts with high median housing values have only a slight advantage in assessed value per student (as evidenced by a correlation coefficient of only +0.06 between these two variables.[16] Table 4 shows also that school districts with high median housing values characteristically have high tax rates (r, the correlation coefficient, equals +0.16), but re-

ceive a smaller proportion of their budgets from the state and Federal governments (r = -0.21).

Urban, Suburban, and Rural Differences

The correlations discussed in the preceding section can be identified to a considerable extent with differences between urban, suburban, and rural school districts. Table 5, calculated from the data in Table 1, shows the average figures for current expenditure and its determinants in urban, suburban, and rural school districts in the Kansas City SMSA.[17] The classification of the school districts is as shown on the map. Despite the fact that the average current expenditure per student of each group is approximately equal to the overall average (with urban districts slightly above average and suburban districts somewhat below average), the determinants of current expenditure per student vary widely. Assessed value per student is considerably higher than average in urban districts, slightly higher in rural districts, and lower in suburban districts. In order

15/ This does not imply that state and Federal payments have an equalizing impact when measured in absolute terms, since payment of a fixed sum per student would constitute a smaller proportion of the total budget in a school district with high expenditure per student than in one with low expenditure per student.

16/ This positive correlation between median housing value and the tax rate is expected in light of the positive coefficients in regressions of the tax rate on median income noted in LeRoy and Brockschmidt, "Who Pays the School Property Tax?" since median housing value and median income are themselves highly correlated (r = +0.92). Because of the link between median housing value and median income, the present analysis can be used to interpret the results of the earlier article. For example, the data presented in this article show that the high tax rates in school districts with high median incomes are needed to offset low nonresidential assessed values and low state and Federal aid, and not to finance high rates of expenditure per student.

17/ Geometric rather than arithmetic averages are shown in Tables 5 and 6 in order to preserve the equalities between current expenditure per student and assessed value per student and their respective determinants for the averaged data.

Table 6
URBAN, SUBURBAN, AND RURAL AVERAGES
FOR ASSESSED VALUE AND ITS DETERMINANTS

	Assessed Value Per Student ($ thousands)	=	Median Housing Value ($ thousands)	x	Households Per Student	x	Total/Residential Value
Urban Average	42.4		12.8		1.25		2.65
Suburban Average	36.3		16.8		0.99		2.18
Rural Average	40.5		12.5		1.10		2.93
Overall Average	39.6		13.6		1.09		2.68

SOURCE: Table 1.

to offset their relatively low assessed values per student, suburban districts levy property taxes at a higher rate than urban or rural districts. State and Federal aid forms a somewhat higher proportion of total expenditure in rural school districts than in urban or suburban districts. On the other hand, the ratio of current expenditure to total expenditure shows no significant differences among urban, suburban, and rural districts.

The most striking result here is that suburban school districts have considerably lower assessed values per student than either urban or rural school districts. This conclusion may seem surprising in view of the greater affluence of suburban residents. To determine the reason for the lower assessed values per student in suburban school districts, the determinants of assessed value per student were averaged for urban, suburban, and rural areas (Table 6). As expected, suburban school districts have much higher median housing value than either urban or rural districts. However, this advantage is offset by a total-to-residential assessed value ratio that is lower than that for either urban or rural districts. Despite the much-publicized flight of business and industry to the suburbs, urban districts are seen to maintain greater concentrations of business property on the tax rolls than suburban districts. The total-to-residential assessed value estimate is even higher in rural districts than in urban districts, probably due to the ample availability of business property in the form of farms.[18]

In addition to a relative lack of business

property on the tax rolls, suburbs are disadvantaged by a low households-to-students ratio, particularly compared with urban districts. The reason is that a disproportionately large number of families with school-age children locate in the suburbs, while young couples without children, single people, and older adults are more likely to remain in urban areas. Also, a higher proportion of students in urban districts attend nonpublic schools. These factors operate to the advantage of urban schools and the disadvantage of suburban schools, which accounts for the lower-than-average assessed value per student of suburban school districts.

CONCLUSION

The California Supreme Court held that the substantial dependence of California public schools on the local property tax illegally discriminates against the poor. The Beverly Hills and Baldwin Park school districts, cited in the *Serrano* case, exemplify the disparities in educational finance that can result from extreme variations among school districts in assessed value per student. The general pattern of low tax rates with high expenditure per student in "rich" school districts and high tax rates with low expenditure per student in "poor" districts was found to violate the Constitutional guarantee of equal protection, since the quality of public education is made a function of wealth.

18/ The statistical procedure adopted to calculate the total/residential assessed value ratios involved imputing to farms a residential value equal to the value of the average nonfarm residence in the school district and treating the remainder of the farm's value as business property.

The pattern was seen to be substantially different in the Kansas City area. To be sure, there are considerable variations in current expenditure per student among school districts, with these variations being related to differences in assessed value per student, as in California and also New England. However, the variations of both variables are much less in the Kansas City area than New England, indicating that disparities among districts in school finance are not as great in the Kansas City area. Examination of the correlations among current expenditure per student, assessed value per student, and the tax rate suggested a major consequence of the lower variation of assessed value per student in the Kansas City area. In the Kansas City SMSA, school districts with high tax rates are likely to be those desiring high expenditure per student; whereas in the New England states, with their higher variation of assessed value per student, school districts are virtually required to use the tax rate to offset variations in assessed value per student. Thus, because of the difference in the variation of assessed value per student, school districts in New England characteristically conform to the Beverly Hills-Baldwin Park pattern, while school districts in the Kansas City area do not.

The analysis of this article, then, attributed the major contrasts between school finance patterns in the Kansas City area, on one hand, and New England and California, on the other, to the lower variation of assessed value per student in the Kansas City area. By examining the determinants of assessed value per student it was possible to isolate some of the specific factors promoting low variation in assessed value per student in the Kansas City area. Generally, variations in the determinants were seen to offset one another, so that if one determinant favored a school district another determinant was likely to cancel the advantage. The most striking instance of this offsetting behavior is that school districts with high median housing values—primarily suburban districts—characteristically have less nonresidential property on the tax rolls than urban or rural school districts. Also, suburban districts have large school-age populations relative to the number of households, further offsetting their higher median house value. As a result of these offsets, variations in assessed value are more moderate than would otherwise be the case.

These conclusions imply that reliance on the local property tax to finance schools does not systematically discriminate against the poor. The urban and rural school districts, where most of the low-income families in the Kansas City metropolitan area live, are favored by relatively high nonresidential assessed values, relatively low school-age populations, and relatively more abundant state and Federal support. As a consequence, the urban and rural districts are able to afford higher expenditure per student and lower tax rates than the more affluent suburban districts.

These findings do not imply that the local property tax is beyond criticism, since it has adverse effects not indicated by the data on disparities in school finance. Reliance on the local property tax gives municipalities an incentive to adopt rigid construction codes and zoning restrictions in order to exclude the poor, who contribute relatively little to the tax base. The resulting impediments to mobility contribute to the continuing decay of urban areas in the United States. For this reason alone any proposal to lessen reliance on the local property tax should receive a sympathetic hearing. However, care should be taken not to overstate the case for reform. Elimination of disparities in school finance will not automatically bring relief to those school districts which may need it most. For example, the Kansas City, Missouri, school district draws on a relatively high assessed value per student and might not benefit from reform. These considerations suggest that, while reform of school finance methods is needed, any attempt to jettison the local property tax should be preceded by careful planning.

The Impact of Changing Check Clearing Arrangements On the Correspondent Banking System

By Robert E. Knight

In recent years the traditional methods of effecting payments have come under increasing examination. Charges that banks will be smothered under a mountain of paperwork unless drastic changes are made have become almost commonplace. Strong stimulus has been given the use of wire and paperless transfers with the completion of the Federal Reserve's Culpeper center and the experiments with a variety of electronic payments systems in various sections of the country. The speed and efficiency of check collections are being increased with the development by the Federal Reserve of regional check processing centers (RCPC's), and the requirement that banks pay for cash letters received from the Federal Reserve in immediately available funds. Some correspondent banks have discovered that by developing their own networks for clearing checks and bypassing the more traditional avenues, substantially earlier collection can be obtained. This article considers some of the more recent and significant changes in check clearing arrangements with the main focus on the development of RCPC's and the implications for the correspondent banking system.

ROLE OF CORRESPONDENT BANKS IN CLEARING CHECKS

An important consideration in founding the Federal Reserve was the desire to establish a comprehensive and economical system for clearing checks. The Federal Reserve Act provides that the System's check clearing services are to be available both to member banks and to nonmembers maintaining clearing accounts with the System. Nevertheless, comparatively few banks have chosen to send checks directly to Reserve Banks. The imposition of sorting, encoding, and computer processing requirements has discouraged many smaller member banks from making direct deposits with Reserve Banks. Nonmember banks, on the other hand, have frequently found clearing checks through correspondents advantageous. All states with reserve requirements permit nonmember banks to count balances due from other banks as reserves. Since correspondent banks normally give immediate ledger credit for cash letters received, nonmember banks are often able to meet a substantial proportion of state reserve requirements with uncollected funds and with compensating balances maintained with correspondents for other purposes.[1]

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[1] The immediate credit provided by correspondents is frequently misunderstood. Even though immediate ledger credit may be given for cash letters, depositing banks are not free to draw on these funds until they are collected. Moreover, in determining the earnings value of an account, correspondent banks make a deduction from the ledger balance for uncollected funds to determine collected and investable funds. As a result, the provision of immediate credit for cash letters is of value primarily to nonmember banks in meeting state reserve requirements, but it does not represent available funds.

Recent surveys have indicated the significance of the correspondent network in clearing checks. A 1969 survey by the Federal Reserve Bank of Kansas City covering banks in Tenth District states revealed that over 90 per cent of the survey banks and 87 per cent of the member banks preferred to send checks drawn on nonlocal banks to correspondents.[2] Only banks with deposits in excess of $100 million normally cleared checks directly with the Federal Reserve. Although estimates of the percentage of nonlocal checks sent to correspondents by banks with total deposits less than $100 million vary from 70 to 95 per cent, these figures tend to overstate the role of the correspondent network in clearing checks. Many correspondents send checks received from smaller banks to the Federal Reserve. The number of checks cleared through the Federal Reserve, consequently, is greater than the figures might suggest. However, even large correspondents clear about one-fourth of their checks through other correspondents.

The most important reason survey banks listed for sending checks to correspondents relates to the immediate credit correspondents offer. A noteworthy number of banks also indicated that the "saving of sorts" and "more prompt clearance" were advantages. The most common "other" reasons given were that banks were not members of the Federal Reserve or that check clearing patterns were based on tradition.

A rough indication of the balances generated for correspondent banks by providing check clearing services can be obtained from another survey conducted by the Kansas City Reserve Bank in 1971. This survey examined the procedures used by correspondent banks to analyze the accounts of smaller banks to determine whether the balances held to compensate for services are adequate. In the analysis, the charges for various services are re-lated to the imputed earnings represented by the balance maintained.

At the time of the survey, 42 per cent of the total ledger balances due to other banks were uncollected funds. These balances represent the dollar amount of cash and noncash items correspondents have received for clearing but for which they are unable to obtain immediate credit. The survey revealed that the major proportion of analysis expenses for most survey banks was related to check clearings.[3] 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 high analysis charges for check clearing. Among the banks in the sample, urban respondents typically sent 1½ to 3 times as many checks to correspondents as did rural banks of similar size. Despite relatively high analysis charges, total fees for ledger entries and returned items were generally quite small. 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 items deposited. Nevertheless, the total balances required to compensate correspondents for transit services were substantial. For all but small rural banks, the sum of uncollected balances and balances required for transit services averaged over 70

2/ Results of this survey were released in the November and December 1970 *Monthly Reviews* of the Federal Reserve Bank of Kansas City.

3/ To obtain an estimate of the compensating balances required for check clearing services, it was necessary to obtain a relatively accurate count of the number of checks banks on the average clear through correspondents along with the related counts on returned items and ledger entry credits and debits. Since most small banks do not maintain records of item counts, a number of correspondents in different sections of the country were asked to provide copies of their analysis statements for individual banks covering the month of July 1971. Correspondent banks were requested to select only those banks believed to be sending essentially all of their transit items to the correspondent. A total of 344 analysis forms were received.

At the same time another survey was conducted of major correspondent banks throughout the country to determine the typical charges for services and the methods of analyzing the profitability of the accounts of respondent banks. A complete description of account analysis procedures and the results of this latter survey is contained in the December 1971 *Monthly Review* of the Federal Reserve Bank of Kansas City.

To reduce the potential bias which would result from the fact that the banks providing copies of the monthly account analysis statements for specific respondents might tend to have above or below average collected balance requirements for transit services, the item counts obtained from the forms were multiplied by the median collected balance requirements determined from the broader survey of charges.

Table 1
COMPENSATING BALANCES REQUIRED BY CORRESPONDENTS
FOR PERFORMING TRANSIT SERVICES

	BANK DEPOSIT SIZE (In millions of dollars)					
	Less than $5	$5 to $10	$10 to $15	$15 to $20	$20 to $25	$25 to $30
1. Average demand balances held with banks in the United States in thousands of dollars* (June 30, 1971)	259	533	795	1,356	1,370	1,606
2. Average demand balances held with primary correspondent by sample banks in thousands of dollars (July 1971)						
RURAL BANKS						
Average ledger balance	153	343	428	756	1,063	1,567
Average collected balance	104	222	208	388	283	103
URBAN BANKS						
Average ledger balance	NA	305	473	807	1,062	1,020
Average collected balance	NA	192	314	443	574	373
3. Collected balances as a per cent of ledger balances						
RURAL BANKS	68.27	64.72	48.51	51.30	26.58	6.56
URBAN BANKS	NA	62.85	66.45	54.88	54.03	36.56

AVERAGE NUMBER OF SELECTED CORRESPONDENT TRANSACTIONS DURING JULY 1971

	Less than $5	$5 to $10	$10 to $15	$15 to $20	$20 to $25	$25 to $30
4. Average number of items deposited						
RURAL BANKS	6,934	15,802	27,351	42,985	50,662	81,500
URBAN BANKS	NA	41,387	62,154	63,196	69,330	100,411
5. Average number of returned items						
RURAL BANKS	13	19	22	26	31	NA
URBAN BANKS	NA	18	19	10	16	23
6. Average number of ledger entry credits						
RURAL BANKS	43	60	64	86	104	171
URBAN BANKS	NA	94	87	109	132	195
7. Average number of ledger entry debits						
RURAL BANKS	91	116	209	205	344	NA
URBAN BANKS	NA	91	85	168	129	151

COLLECTED BALANCES REQUIRED TO COMPENSATE CORRESPONDENTS

	Less than $5	$5 to $10	$10 to $15	$15 to $20	$20 to $25	$25 to $30
8. Collected balance requirements in thousands of dollars						
RURAL BANKS						
Items deposited	27.46	62.58	108.31	170.22	200.62	322.74
Returned items	1.13	1.65	1.91	2.25	2.69	—
Ledger entry credits	1.23	1.72	1.84	2.47	2.98	4.90
Ledger entry debits	1.97	2.51	4.51	4.43	7.43	—
Total	31.78	68.45	116.57	179.37	213.72	—
URBAN BANKS						
Items deposited	—	163.89	246.13	250.26	274.55	397.63
Returned items	—	1.56	1.65	0.87	1.39	1.99
Ledger entry credits	—	2.70	2.50	3.13	3.79	5.59
Ledger entry debits	—	1.97	1.84	3.63	2.79	3.26
Total	—	170.11	252.11	257.88	282.51	408.48
9. Per cent of ledger balances attributable to float or held to compensate for check clearings						
RURAL BANKS	52.80	55.23	78.64	72.40	93.48	—
URBAN BANKS	—	92.82	86.92	77.06	72.55	103.48
10. Per cent of collected balances necessary to compensate correspondents for transit services						
RURAL BANKS	30.56	30.83	56.04	46.23	75.52	—
URBAN BANKS	—	88.60	80.29	58.21	49.22	109.58

*Excludes balances at U.S. branches of foreign banks.
NA—Not available due to small sample size.

per cent of 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 basic data underlying these conclusions are shown in Table 1.)

These figures provide a guide to the maximum reduction in correspondent balances which might occur if small banks were to utilize the clearing services of the Federal Reserve exclusively. Assuming remaining correspondent balances are necessary to compensate for other services, the maximum decline in *principal* correspondent accounts of small banks would average about 50 per cent for rural banks with deposits under $10 million and over 70 per cent for other banks. While these potential losses are large, two important qualifications must be recognized. First, with the exception of small urban banks, about 60 per cent of the loss in each deposit size category would be attributable to a reduction in uncollected funds or float. For urban banks with deposits under $15 million, the proportion attributable to float would approximate 40 per cent. Losses of such funds would affect correspondent bank deposit totals, but would not influence their loanable funds or earnings. Second, the loss figures refer only to balances maintained at *principal* correspondents and not to total correspondent balances maintained by respondents. Since the balances held at *principal* correspondents by the survey banks with less than $20 million in deposits average only 60 per cent of the total correspondent balances maintained by these banks, the potential reduction for these respondents would range between 30 and 40 per cent of total correspondent balances held. The reduction for larger respondents would be somewhat greater.
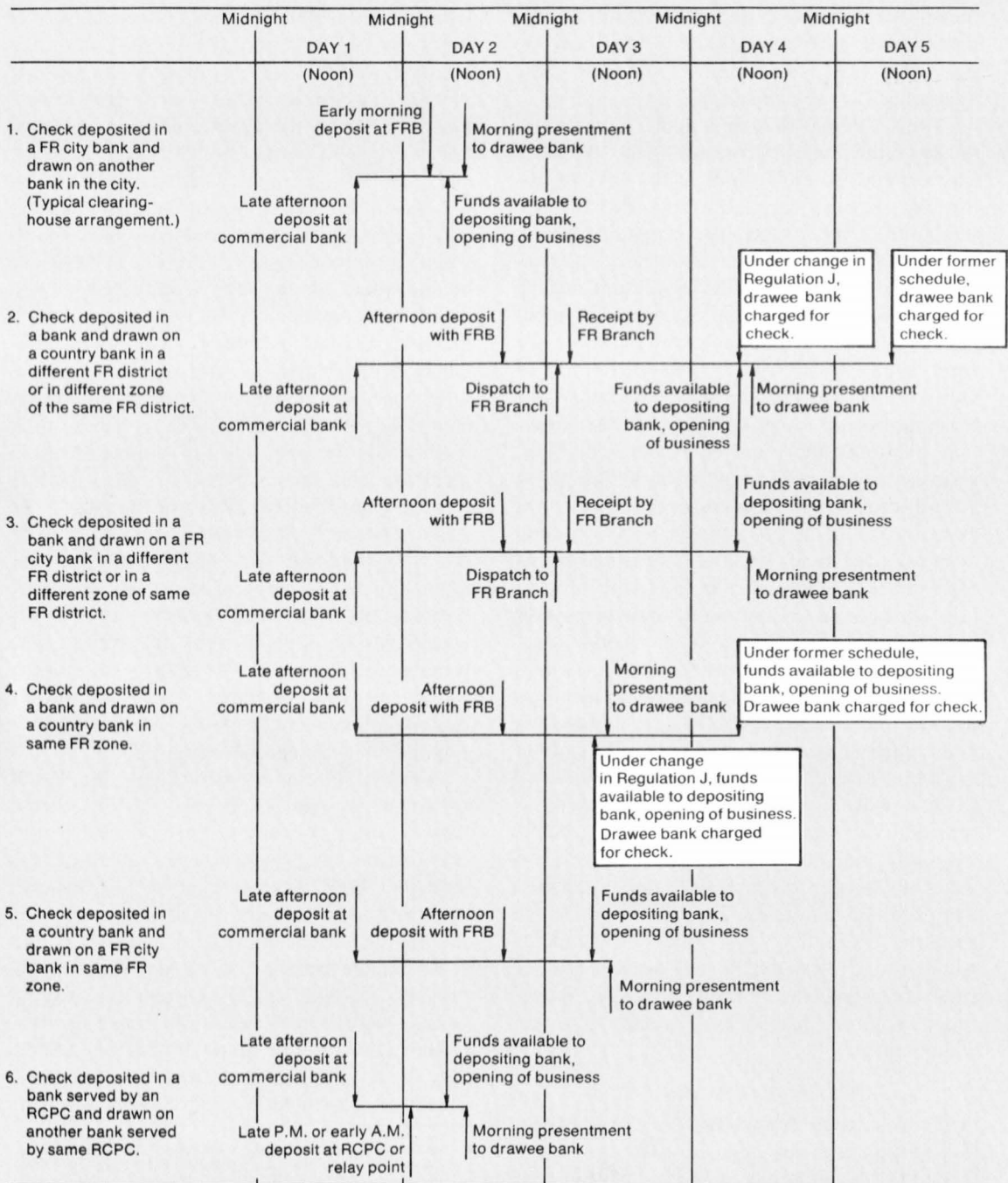
MANDATE FOR CHANGE

Proposals for modifying the check collection system are not new. In 1954 the Wurts Committee, composed of representatives of the American Bankers Association, the Association of Reserve City Bankers, and the Conference of Reserve Bank Presidents, was organized. At that time the Wurts Committee found that over 90 per cent of the dollar amount of money payments in the United States were made by check, that check collection problems arose primarily from the volume of checks, and that the average check passed through 2.3 banks in the collection process. Recognizing that the volume problem could be alleviated by reducing the number of handlings of individual checks, the Committee recommended increased use of regional clearinghouses. It also proposed that nonmember banks be permitted to present checks directly to the Reserve Banks for credit to the accounts of member banks, if those items otherwise would be sent by the nonmembers to members and then cleared by the members through the Federal Reserve System. The ABA approved the recommendations with the understanding that they would not be used by the Federal Reserve to stimulate membership. However, reserve city banks voiced strong opposition to the report. The principle of more efficient and speedier check collections was accepted, "but not where this acceptance might possibly endanger correspondent banking relationships."

Despite minor modifications, the check collection system experienced little change until recently. A study of check clearing practices in the late 1960's found that check volume had been increasing at an average rate of 7 to 8 per cent per year,[4] suggesting that the number of checks written annually is likely to double during the current decade. Approximately half of all checks received by banks were transit items not drawn on local banks. However the study found that nationally about 35 per cent of all transit items were drawn on banks within 75 miles of the bank

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[4] Linda M. Fenner and Robert H. Long, *The Check Collection System: A Quantitative Description* (Park Ridge, Ill.: Bank Administration Institute, 1970).

Table 2
CHECK COLLECTION SCHEDULES AND AVAILABILITY OF FUNDS

	Midnight DAY 1 (Noon)	Midnight DAY 2 (Noon)	Midnight DAY 3 (Noon)	Midnight DAY 4 (Noon)	Midnight DAY 5 (Noon)
1. Check deposited in a FR city bank and drawn on another bank in the city. (Typical clearinghouse arrangement.)	Early morning deposit at FRB Late afternoon deposit at commercial bank	Morning presentment to drawee bank Funds available to depositing bank, opening of business			
2. Check deposited in a bank and drawn on a country bank in a different FR district or in different zone of the same FR district.	Late afternoon deposit at commercial bank	Afternoon deposit with FRB Dispatch to FR Branch	Receipt by FR Branch Funds available to depositing bank, opening of business	Under change in Regulation J, drawee bank charged for check. Morning presentment to drawee bank	Under former schedule, drawee bank charged for check.
3. Check deposited in a bank and drawn on a FR city bank in a different FR district or in a different zone of same FR district.	Late afternoon deposit at commercial bank	Afternoon deposit with FRB Dispatch to FR Branch	Receipt by FR Branch	Funds available to depositing bank, opening of business Morning presentment to drawee bank	
4. Check deposited in a bank and drawn on a country bank in same FR zone.	Late afternoon deposit at commercial bank	Afternoon deposit with FRB	Morning presentment to drawee bank	Under former schedule, funds available to depositing bank, opening of business. Drawee bank charged for check.	
5. Check deposited in a country bank and drawn on a FR city bank in same FR zone.	Late afternoon deposit at commercial bank	Afternoon deposit with FRB	Funds available to depositing bank, opening of business Morning presentment to drawee bank		
6. Check deposited in a bank served by an RCPC and drawn on another bank served by same RCPC.	Late afternoon deposit at commercial bank Late P.M. or early A.M. deposit at RCPC or relay point	Funds available to depositing bank, opening of business Morning presentment to drawee bank			

Under change in Regulation J, funds available to depositing bank, opening of business. Drawee bank charged for check.

of deposit, 50 per cent within 150 miles, and 63 per cent within 300 miles. The average check was processed by 2.6 institutions before being paid, a slight though probably not significant increase from the average of 2.3 found in the early 1950's. Based on this finding, the study concluded that the average item was in the distribution and processing stream about 2.6 days.

A continuing force for change has been Congressional criticism of the growth in Federal Reserve float, which has been viewed as an interest free loan to banks. When checks are cleared through the Federal Reserve, banks are given credit for the checks according to a set schedule rather than when payment is received by the Fed. Float represents the aggregate amount of checks in process of collection for which credit has been granted by the Federal Reserve without the receipt of payment, minus the amount of checks (if any) for which payment has been received but not given. From around $1 billion in the early 1950's, Federal Reserve float rose to over $3 billion prior to the recent change in Regulation J. About two-thirds of this float was attributable to the fact that the maximum period for which credit was deferred under the Fed's schedule was 2 days, but until recently Reserve Banks, even under ideal circumstances, were normally unable to collect items drawn on country banks in other Federal Reserve districts or in other zones of the same Federal

Reserve district in less than 3 days.[5] (See Item 2, Table 2.)

The recent change in Regulation J requires all banks to pay for cash letters received from Reserve Banks on the day of receipt in immediately available funds. Since banks already served by an RCPC (Item 6) and most in cities with Federal Reserve Banks (Items 1, 3, 5) were previously paying on the day of receipt, these banks were not required to pay more rapidly. However, outlying banks generally have not been required to pay until the day following receipt of the cash letter (Items 2, 4). The delay has been permitted because these banks, unlike city banks, have often been unable to get their transit checks to the Reserve Bank for collection on the day of original deposit. Under the modification in Regulation J, the Federal Reserve grants earlier availability of funds to banks only for those items drawn on banks served by the same Federal Reserve office as the depositing bank. Consequently, Federal Reserve float has been reduced by the amount of items drawn on country banks in other districts and zones which amounts to over $2 billion on average.

Under the change in Regulation J, banks in Federal Reserve cities are not required to pay more promptly, but receive earlier credit for items in their outgoing cash letters drawn on country banks in the same Federal Reserve zone. The effect, therefore, is to transfer collected funds from outlying banks, which pay a

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NOTE: City banks in the chart are those which prior to the recent change in Regulation J paid for Federal Reserve cash letters in immediately available funds. These banks would include most in cities with Federal Reserve Banks and also those receiving cash letters from RCPC's. All others are referred to as country banks.

If the depositing bank receives funds at the same time as the drawee bank is required to pay for the check, a separate entry indicating the actual payment for the check has not been shown. However, if the two times differ, resulting in Federal Reserve float, a separate entry has been included for each. Similarly, if the change in Regulation J would affect payment or collection schedules, these modifications are shown in the chart.

Although the times indicated in the chart are representative of the clearing schedules for most banks, exceptions are not unusual. The schedules, consequently, should not be applied to specific situations without first ascertaining the validity of the times shown.

5/ In addition to "time schedule" float, described above, there are at least three other types of Federal Reserve float. "Holdover" float, comprising about 10 per cent of the total, represents the dollar amount of items the Federal Reserve is unable to process in time to meet dispatch deadlines. Such float arises primarily during periods when mechanical failures occur with check sorting and encoding equipment or when check volumes are unusually large. "Transportation" float, averaging over 20 per cent of the total, occurs from unexpected or unusual delays in the movement of checks between Federal Reserve offices. "Remittance" float, which amounts to less than 5 per cent of the total, develops when banks fail to remit to the Federal Reserve for cash letters at the appropriate time. With the Federal Reserve now making automatic deductions from reserve accounts for cash letters sent to banks, remittance float will tend to disappear.

All Federal Reserve float could be eliminated if the Reserve Banks were to grant credit to clearing banks only as the checks are actually collected. However, lengthening the payment schedule from its current maximum of 2 days has generally been viewed as a step backwards. The Federal Reserve, consequently, has emphasized speeding collection.

day sooner than previously, to city banks. Estimates suggest city banks on the average should gain funds equal to about 3 per cent of their net demand deposits. In most instances this transfer could be avoided if country banks were able to deposit items with Reserve Banks for collection on the day of original receipt, as city banks often can.[6]

Demands for change have also come from banks in areas where locational factors made prompt collection of checks difficult. The most pronounced problems have occurred for banks located considerable distances from Federal Reserve offices and in metropolitan regions served by different offices of Federal Reserve Banks. Since the situation has varied from place to place, two examples may help to describe the nature of the difficulties.[7]

Example 1: The Washington, D. C. metropolitan area, which is composed of Washington, D. C. and its suburbs in Virginia and Maryland, is in the Richmond Federal Reserve District. Prior to the creation of the Washington-Baltimore Regional Clearing Center in 1970, however, Washington and the Virginia suburbs were served by the Richmond office of the Federal Reserve, while the Maryland suburbs were served by the Baltimore Branch of the Federal Reserve. Consequently, if a check drawn on a bank in a Virginia suburb were deposited in a bank in a Maryland suburb on Monday, and the check were cleared through the Fed, credit would not have been received by the Maryland bank until Thursday. More specifically, the Maryland bank could deposit the check at the Baltimore Branch on Tuesday, where it would be forwarded to the Richmond office on Wednesday. The Richmond office would present the check

to the Virginia bank on Thursday and would receive payment on Friday. Since the maximum deferment under the Fed's availability schedule was 2 days, the Fed would give credit to the Maryland bank on Thursday and float for 1 day would be created. Under the recent modification in Regulation J, the availability of funds to the Maryland bank would not have changed, but the Federal Reserve's float would be eliminated.

With the creation of the Washington-Baltimore Regional Clearing Center, the check can now be deposited by the Maryland bank at the Baltimore office for presentment and collection on Tuesday. A collection period of 4 days has been shortened to overnight availability of funds and Federal Reserve float eliminated.

Example 2: Prior to the opening of the Miami Regional Check Clearing Center in late 1971, southern Florida was served by the Jacksonville Branch of the Atlanta Reserve Bank. Under that arrangement, if a suburban bank in the Miami area received a check drawn on another bank in Miami on Monday and the check were cleared through the Federal Reserve System, the suburban bank would deposit the check with the Jacksonville Branch on Tuesday. The Branch would forward the check to the drawee bank on Wednesday and would receive payment on Thursday. Under the 2-day deferment schedule, credit would also have been granted the suburban bank on Thursday. As a result, no Federal Reserve float would have been created. With the recent change in collection schedules, the suburban bank would collect the check on Wednesday. However, by using the Miami Clearing Center, collection of the check can now occur on Tuesday. If the check is deposited with the Center on Monday evening, it is presented and collected on Tuesday morning.

These examples demonstrate the delays in collection which can occur if checks are routed in a circuitous fashion. As might be anticipated under these circumstances, few

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6/ If country banks making earlier payment for cash letters were formerly unable to deposit items for collection with Reserve Banks on the day of original receipt, earlier deposit would prevent the transfer. These banks would be required to pay for incoming cash letters a day earlier, but could start collection of outgoing cash letters a day sooner. Country banks previously depositing items with Reserve Banks on the day received, however, would not have an opportunity to initiate collection of outgoing cash letters sooner and could not avoid the loss of funds to city banks.

7/ The first example corresponds to Item 2 of Table 2, and the second to Item 4.

checks drawn on regional banks were collected through Federal Reserve facilities. The largest banks in both the Washington and Miami areas performed regional check collection services for area banks and presented as many checks as possible on an overnight basis. Nevertheless, similar problems are likely to exist whenever banks are situated close to the borders of Federal Reserve territories, or a city in one Federal Reserve zone is located in the economic and trade area of another Federal Reserve zone. The indirect routing of checks in such cases delays their collection. In these instances, further problems arise because returned items can take 8 to 10 working days to return to the bank of original deposit, thus creating greater than normal uncertainty for banks in the management of funds.

Following the general examples of the Miami and Washington-Baltimore Regional Clearing Centers, the Federal Reserve made plans to establish approximately three dozen additional check processing centers at central locations about the country. The goal of these RCPC's is to permit all participating banks[8] to route virtually all items drawn on other participating banks to the clearing center on the day of original deposit. At the clearing center the items are processed and returned to the drawee banks for payment early the following morning. Presently, larger banks in Federal Reserve cities are able to do this, but distant banks are typically unable to process all items on the day of receipt before dispatch must be made. To give equality to all participating banks regardless of location, drop boxes or relay points where participating banks may deposit items have frequently been located at major population centers within the geographical area served by the RCPC. The cutoff time for receipt of items at these

locations is usually identical to the deadline at the clearing center. In some instances all banks within Federal Reserve districts are scheduled to be served by RCPC's. In other cases only those banks within a given radius of the check processing center or only those located along major transportation lines or corridors leading to the center are included.

To ensure uniformity, the Board of Governors issued a set of basic guidelines covering the operating principles of RCPC's in February 1972. Those provisions of importance to correspondent banks relate to the conditions under which banks may deposit items with the RCPC. Under the guidelines all participating banks are to be permitted to send items drawn on other participating banks, U. S. Government checks, postal money orders, and other items payable at a Federal Reserve office, directly to the RCPC. Only Federal Reserve member banks, however, are to be permitted to deposit checks drawn on banks not directly serviced by the RCPC. When fully operational, an RCPC will accept items from all Federal Reserve offices, direct sending member banks, and other RCPC's on the same terms as from participating banks. Participating Federal Reserve member banks with average daily deposits under 2,000 items may send these to the center unsorted. In general, all items deposited should be amount encoded and fully qualified. Regional check processing centers organized since the guidelines were issued have tended to follow the broad provisions, although the sorting and encoding requirements have frequently been relaxed. However, the operating rules for check clearing centers instituted earlier occasionally differ in significant ways.

Just as the requirement that all banks pay for cash letters in immediately available funds can create difficulties for banks unable to get all of their transit work to the Reserve Bank on the day of initial deposit, the development of RCPC's has created a related

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8/ Throughout the balance of this article, "participating banks" refer to those that receive cash letters from regional check processing centers and pay for these cash letters in immediately available funds. "Member banks" are those which are members of the Federal Reserve System.

problem for participating banks. Due to the late cutoff hour for the receipt of items at RCPC's, banks located outside the region served by an RCPC can often clear checks drawn on participating banks overnight, either by sending cash letters directly to the RCPC or by depositing items with participating correspondent banks which in turn channel the items to the RCPC. Such an effort, of course, would be feasible and economical only if the dollar amounts were substantial. However, participating banks clearing checks on banks not served by an RCPC must accept the normal delay in the Fed's availability schedule. The effect, consequently, is to transfer funds from banks participating in RCPC arrangements to nonparticipating banks. Both the immediate payment and RCPC problems would be eliminated if all banks were able to obtain overnight collection of all items on the day of initial deposit.

In any event, the development of RCPC's offers numerous advantages to the banking system as a whole. By speeding check collection and reducing the number of handlings and transportation costs, check processing centers improve the efficiency of the check clearing mechanism. In some areas served by RCPC's, as many as 70 per cent of all checks deposited in banks will be collected on an overnight basis. Moreover, by returning unpaid items more promptly, potential losses to the public and the banking community are reduced. Looking to the future, these centers may serve as the nucleus for the ultimate development of an electronic payments system.

EFFECTS ON THE CORRESPONDENT BANKING SYSTEM

Change in Regulation J

Although correspondent banks have been apprehensive about the possible implications of the change in Regulation J, the long-run effect on the collected balances of most correspondents should not be great. After transitional difficulties have been resolved, correspondent banks are likely to find that ledger balances due to other banks average somewhat less than initially because the uncollected portion of those balances will have been reduced. A large reduction in collected balances due small respondents, however, is unlikely. As long as smaller banks continue to clear checks through correspondents, account analysis procedures will require maintenance of collected balances near present levels.[9]

The impact of the change on individual banks will depend on their location and type of business, how they collect checks, and the dollar size of their cash letters. Since most member banks and nonmember banks located in Federal Reserve cities will benefit from the changes in Regulations D and J, the problem area for correspondents is likely to be with country nonmember banks. These banks have been asked to make earlier payment for cash letters, but will not in many instances have the benefit of reduced reserve requirements. Nonmember banks, on the average, hold considerably larger balances with correspondents than do member banks of similar size; yet, they frequently do not demand proportionately more in services. While some reduction may occur in these accounts, it should be remembered that nonmember banks will still be required to meet reserve requirements and that for nonmember banks, reserve requirements are a primary determinant of correspondent balances. As the uncollected funds in these accounts are reduced, correspondent banks may find that the collected funds increase and that these accounts be-

9/ The correspondent banks which are most susceptible to deposit losses are those located in cities without Federal Reserve offices. These banks have occasionally obtained balances from other large banks which wish to obtain overnight collection of items drawn on banks in these nonreserve cities. If the cash letters were sent instead to the Federal Reserve for collection, availability would have been deferred 2 days. Since the change in Regulation J permits banks within a Federal Reserve zone to obtain overnight collection of items drawn on all other banks in that zone, quicker collection will no longer be obtained by sending cash letters to correspondents located in the same Federal Reserve zone. Consequently, correspondents in such cities as Milwaukee, Indianapolis, Rochester, Phoenix, Orlando, and Columbus may experience some permanent reduction in collected deposits.

come more profitable. In any event, the changes will make it more difficult for nonmember banks to meet a substantial proportion of reserve requirements with uncollected funds.

Since the collection schedule on out-of-territory items is not altered, the change in Regulation J presents an opportunity for correspondent banks to increase their transit business. In many locations correspondents can promise earlier collection of checks if those checks are cleared through the correspondent network rather than the Federal Reserve. For example, if a bank receives items on Monday drawn on a bank located at a 2-day Federal Reserve point, the checks could be cleared through Federal Reserve channels for credit on Wednesday or Thursday. However, by sending the items to a correspondent in that city on Monday night, Tuesday funds frequently can be obtained. While this opportunity is not new, the increasing emphasis on the speed of check collections is likely to increase its importance.

Development of Regional Check Processing Centers

A much more serious challenge to the correspondent banking system is the development of regional check processing centers. About 32 per cent of all checks received by large banks come in cash letters from other commercial banks. In southern Florida and in the Washington-Baltimore area, correspondent banks previously ran clearinghouses for other banks, but operations ceased abruptly upon the formation of check processing centers. Generally, however, the effects on correspondent banks have been mixed and have depended to an important degree on the conditions under which the center will accept checks from participating banks and on the attitude of correspondent banks.

If only members of the Federal Reserve System are permitted to deposit checks with the RCPC, the transit items of nonmembers must be cleared through correspondents. If an early deadline is imposed by the RCPC for the receipt of checks from banks outside the geographical area served by the RCPC, those banks wishing to speed the collection of checks are required to use correspondent banks. Similarly, if the center's requirements for encoding and sorting are restrictive, the flow of checks will be affected. A 1972 study of check clearing practices in Kansas and the Tenth District portion of Missouri found that over 73 per cent of the banks with deposits over $10 million normally send correspondents amount encoded items, but only 39 per cent of those with deposits between $5 and $10 million and 8 per cent of those with deposits under $5 million amount encode items.[10] The limit of 300 unencoded items which has been in effect at most Federal Reserve Banks in recent years (and at some RCPC's) would accommodate most rural banks with less than $2.5 million in deposits and virtually no city banks. Similarly, only about 10 per cent of the banks with less than $25 million in deposits indicated they were prepared to perform any comprehensive rough sort on items.

While the Board of Governors' guidelines for RCPC's would permit most smaller banks to send checks directly to the clearing center, the degree to which banks bypass correspondents has often depended on the attitude of the correspondents. Correspondents which have actively solicited the work of smaller banks have usually met with some success. Some banks choose to avoid the sorting and encoding requirements by sending to correspondents. Others do not wish to have their reserve accounts debited or credited or to deal with deferred availability of items and send to correspondents. Some who would have great difficulty meeting normal deadlines for the receipt of items at the RCPC send to correspondents because correspondents can perform a fine sort which normal-

10/ A larger proportion, however, indicated they were using data processing centers, suggesting that the centers are forced to do a large amount of encoding.

ly has a later deadline. Some clear through correspondents to keep the relationship active.

It is too early to judge the total impact of RCPC's on the correspondent banking system. Only a few have opened on a large scale and any analysis for these centers is complicated by special situations existing prior to opening and the fact that the operating rules frequently do not parallel the Board's guidelines. During the next year over a dozen additional centers will open and others will expand. These newer centers will be more indicative of the impact of RCPC's. However, where RCPC's are presently operative, the consequences for correspondent banks have been mixed and have frequently depended on whether smaller banks continue to clear through correspondents. Some correspondents have experienced virtually no adverse effects while deposit losses at others have equaled the potential losses described earlier. Where losses have occurred, by far the largest share has typically represented a drop in uncollected funds which has largely been offset with a reduction in cash items in process of collection. Losses of collected funds due other banks participating in regional clearing arrangements have occasionally been offset by obtaining quicker collection of items drawn on these banks or by soliciting the correspondent business of regional banks that wish to obtain quicker collection of items drawn on all participating banks.

Nevertheless, most correspondent banks directly affected by RCPC's have lost both collected and uncollected balances. As regional clearing centers expand and checks are accepted from all participating banks on relatively liberal terms, deposit losses are likely to become more generalized. However, these losses are not likely to be as great as the maximums suggested earlier or what has occurred at a few correspondent banks upon the opening of RCPC's. The banks experiencing the most severe reductions in "due to" balances were somewhat unusual in that they were located in high float areas and had an above average amount of uncollected balances. Not all smaller banks will wish to sort or encode items themselves, and correspondent banks may be asked to provide the services. Economies of scale, which appear to be of some importance in transit operations and data processing, may mean that correspondent banks can perform these services more cheaply than could small individual banks themselves. Many nonmember banks will undoubtedly continue to hold large correspondent balances for reserve requirement purposes and others will hold "excess" balances to ensure the availability of correspondent services. As more and more correspondents, on the other hand, are faced with a reduction in transit volume, they are likely to offer additional services to respondents and to place greater emphasis on developing compensating balances for services not presently considered when the profitability of accounts is determined.

CONCLUDING REMARKS

The correspondent banking system is facing a challenge. Traditional check clearing services which have formed the foundation of the correspondent banking system are not likely to disappear quickly but will be of less importance in generating balances. Whether or not most banks ultimately are served by RCPC's, the development of such centers will place high priority on the speed of check collections. If the electronic payments system evolves, as some envision, with remote terminals (money machines) scattered at numerous strategic locations around the country—airports, hotels, supermarkets—correspondent banks can provide a natural means to tie many smaller banks into the system. Correspondent banks which have played an active role in the changing payments system and in the provision of data processing services will be in an ideal position to capitalize on their experience and relationships.