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THE ROLE OF CAPITAL AND CREDIT MARKETS IN REGIONAL DEVELOPMENT: PROBLEMS AND ISSUES

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THE ROLE OF CAPITAL AND CREDIT MARKETS IN REGIONAL

DEVELOPMENT: PROBLEMS AND ISSUES

Mathew Shane

It is necessary not only that capital be accumulated,
but also that it be mobilized for productive use,
if an economy is to benefit from an increase in capital
per person. . . . Development, in part, takes the
form of a reduction in uncertainty discounts--a reduction
that makes it possible for capital to move more freely
between regions and industries. [Lance Davis, 8, p. 355.]

THE ROLE OF CAPITAL AND CREDIT MARKETS IN
REGIONAL DEVELOPMENT: PROBLEMS AND ISSUES*

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I.   Introduction

This paper discusses the major problems facing the regional capital

and credit markets in their relationship to regional development.   There

are two ways in which capital and credit markets play a crucial role in

regional development: (1) they mobilize local savings resources and

allocate them between sectors and industries within the region and (2)

they provide the mechanism by which financial resources flow between

the region and the national economy.

Successful continuation of economic development depends on the

ability of financial institutions to adjust to dynamic changes occurring

in the economic environment.   As stated by Hayami and Ruttan [19, p. 4]:

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Successful achievement of continued productivity growth
. . . [the basis of development] . . . involves a
dynamic process of adjustment to original resource
endowments and to resource accumulation during the pro-
cess of historical development. It also involves an
adaptive response on the part of cultural, political
and economic institutions in order to realize the growth
potential opened up by new technological alternatives.

Since financial institutions are the intermediary through which
investment resources are transferred, any inefficiency therein has
ramifications which impede the entire development process. This is the
way in which problems arising in the capital and credit markets relate to
the development process.

There are several criteria for evaluating the effectiveness of
financial institutions. Financial markets are operating properly if
growth in the supply of credit equals or exceeds growth in the demand
for it [36, p. 1]. The following two conditions provide a means of
determining the above. Financial markets can be made more efficient if:

1. a redeployment of credit leads to a higher total income,
    i.e., from lower to higher productivity items;[1] or

2. the regional economy or sectors can obtain better access to
    national money and capital markets.

In both of the above, there is a suboptimal matching of the supply and
demand for finance.

Viewed in the context of the Upper Midwest region, the most
pronounced problem relates to the very substantial change in population

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[1] This definition is a slight modification of that developed by
Koopmans [25, p. 60] in his classic article,"The Analysis of Production
as an Efficient Combination of Resources."

distribution brought about by migration. The magnitude of this problem will be discussed in the next section. This population problem is generated by a large set of economic and financial inducements which are reflected in differential opportunities and services between the rural and urban areas of the region.

Although inefficiencies in capital and credit markets are only one type of causative factor, they can can be particularly significant in the context of our region. For instance, a regression of the change in population between 1960 and 1970 and the deviation from average loan-to-deposit ratio of commercial banks for Minnesota counties, yielded a correlation coefficient of .9. Viewing this in a somewhat different light, if there were no credit market inefficiencies in the region, then the observed population movements would be solely due to other factors and a study of the role of capital and credit markets in this would be meaningless.

In the next section, the magnitude of the population problem will be presented along with some non-financial economic causative factors. This is followed by basic employment and income statistics for the four-state region of Montana, North Dakota, South Dakota and Minnesota.

II. Background

A. The Population Problem

The 1960's brought to this country an awareness of a continuing disequilibrium in the economic-demographic mechanism. This awareness, which focused on the continuing migration from rural to urban areas,

emanated from the increased social service costs in congested urban areas and the related depopulation of rural areas. Although this trend is fundamental to the transformation of a society from an agricultural to an industrial base, in few other countries has this trend gone so far. Currently, in the United States, less than five percent of the population is employed in agriculture [46]. This compares to almost 75 percent employed in India and 25 percent employed in the Soviet Union. The concentration of population in the United States is so severe that 70 percent of the population lives on only two percent of the land area. Further, the agricultural population has decreased not only in relative terms as it had in the earlier periods, but since World War II, there has been an absolute decrease as well.

In the Upper Midwest, a similar pattern emerges. From 1960 to 1970, when the total population of Minnesota increased by ten percent, 49 out of 87 counties lost population. At the same time the seven-county Twin City Metropolitan area had an average county increase of more than 43 percent. If you view this pattern from the perspective of the four-state region of Montana, North Dakota, South Dakota and Minnesota, then the migration pattern has had an even more severe effect.[1/] Over the same period both North and South Dakota had net decreases in population, while Montana had less than a three percent increase. Viewed in this national context, the region's major concern must be the serious

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[1/] In a study of population trends by Maki and Venegas [26], it is shown that migration rather than the pattern of natural increases accounts for the overall changes in population of the area.

depopulation of rural areas.

B.   Economic Issues

Although the migration pattern has inherent implications, it must

be viewed more as a consequence of economic and social incentives rather

than a cause. Three primary economic forces are involved: the pattern

of technological change in agriculture, rural-urban income differentials,

and rural-urban social service differentials.

One of the central features of American agricultural development

is a continuing rate of technical change which is labor saving. In

Minnesota, for instance, while the average farm increased in size by

approximately 24 percent - from 208 to 257 acres - there was a 33 percent

decrease in agricultural labor [32]. This implies a reduction in the

demand for rural-based labor and in the sense that there was increased

capital substitution , an increase in the demand for rural-based finance

as well.

The other major force at work is income and social service differentials

which reflect on the more fundamental question of the relative quality

of life and provide an environment where perceived opportunities are

seen as better in the urban than in the rural areas. In a recent study

of income differentials between farm and nonfarm families [3] over the

period 1960-1969, it is shown that although income differentials

narrowed over the period, substantial differentials still existed at

the end of the period.

Tables 1 and 2 are excerpted from the article by Carlin and

summarize the results for the United States and for the North Central

TABLE 1

DISTRIBUTION OF NONFARM FAMILIES BY TOTAL INCOME, SELECTED YEARS, 1960-69
(1964 constant dollars)

Year	Families earning--						Mean income	Median income	Gini	Annual growth median income (1960-69)
	Less than $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000 or more				
	- - - - - - - - - - - - - - - Pct. - - - - - - - - - - - - - - -						- - - Dol. - - -			Pct.
United States										
1960	17.9	18.7	23.4	22.3	12.9	4.8	6,650	6,110	.355	
1963	16.6	17.1	21.4	23.4	15.5	6.0	7,290	6,510	.352	
1966	14.3	14.5	13.6	25.0	18.5	8.9	8,580	7,260	.346	
1969	11.4	12.9	15.1	22.5	21.6	15.5	10,979	8,140	.342	3.2
North Central										
1960	15.8	16.7	24.4	24.7	14.1	4.3	6,780	6,430	.332	
1963	14.1	14.4	22.4	26.4	17.3	5.4	7,510	6,920	.326	
1966	11.8	12.6	18.1	27.3	20.8	9.4	8,970	7,760	.325	
1969	9.4	10.8	15.4	23.6	24.5	16.3	11,480	8,740	.322	3.5

Source: [3]

TABLE 2

DISTRIBUTION OF FARM FAMILIES BY TOTAL INCOME, SELECTED YEARS 1960-69
(1964 constant dollars)

Year	Less than $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000 or more	Mean income	Median income	Gini ratio	Annual growth median income (1960-69)
	- - - - - - - - - - - - - - - - Pct. - - - - - - - - - - - - - - -						- - - Dol. - - -			Pct.
United States										
1960	49.8	22.7	12.5	9.2	4.5	1.3	3,780	3,010	.456	
1963	42.8	23.3	14.5	11.0	6.2	2.2	4,530	3,480	.438	
1966	31.5	22.4	19.0	14.9	8.3	3.9	5,810	4,620	.399	
1969	25.0	21.2	16.6	16.6	13.1	7.5	7,920	5,430	.403	6.8
North Central										
1960	45.6	26.9	12.2	11.3	3.3	0.7	3,820	3,250	.412	
1963	35.0	25.9	17.5	12.4	7.5	1.7	4,830	4,150	.388	
1966	23.2	22.6	21.2	17.7	10.5	4.8	6,570	5,370	.374	
1969	18.9	21.8	17.5	18.6	15.1	8.1	8,540	6,010	.371	7.1

North Central—N.D., S.D., Nebr., Kans., Minn., Iowa, Mo., Wis., Ill., Ind., Mich., and Ohio

Source: [3]

region.   Several results are noteworthy:

1.   Both farm and nonfarm incomes grew at a faster rate and were higher for the North Central region than for the country as a whole.

2.   Farm income grew at approximately twice the average rate of nonfarm income.

3.   There were still substantial differentials at the end of the period.   Thus nonfarm median family income was more than 45 percent greater than farm median income and 34 percent greater in mean income terms.

4.   Although only 9.4 percent of nonfarm families had incomes of less than $3000 in 1969, almost 19 percent of farm families fell in this category.   Similarly, although only 8.1 percent of farm families had incomes of greater than $15,000, more than double that percent of nonfarm families fell in this category.

The third major area in which significant differentials appear is that of social services.   Although an extensive investigation of this topic would take us far afield of our objective, several meaningful comparisons will be made as a means of demonstrating the nature of the problem.

Table 3 compares per capita expenditures of metropolitan and non-metropolitan local governments for selective services.   Over the services listed, non-metropolitan governments spend an average of only 80 percent per capita of the amount spent by metropolitan governments.   In only one area, money spent on roads, does the expenditure of non-metro governments exceed that of metro governments.   Although some of the difference might reflect the relative costs of these items, it is also indicative of the differentials which appear.

The shortage of medical services is widely recognized.   However, the problem is substantially more acute in rural than in urban areas (cf., Table 4).   In 1969, rural areas had only 48 percent of the

TABLE 3

PER CAPITA EXPENDITURES OF LOCAL GOVERNMENTS FOR
SELECTED SERVICES, BY METROPOLITAN STATUS,
1966-67

Service	Metropolitan (1)	Nonmetropolitan (2)	(2)/(1)
Education	$150.35	$136.44	.91
Health and hospitals	18.30	13.70	.75
Police Protection	16.73	6.56	.39
Roads	21.14	26.77	1.27
Fire protection	9.77	3.46	.35
Sanitation	15.83	7.03	.44
Welfare	24.17	11.88	.49
Total	256.29	205.84	.80

Source: [42, p. 120].

TABLE 4

PHYSICIANS AND HOSPITAL BEDS BY METROPOLITAL STATUS,
UNITED STATES, 1969 (Number Per 10,000 Population)

Category	Metropolitan (1)	Nonmetropolitan (2)	(2)/(1)
Physicians, total	14.3	6.8	.48
General Practice	2.5	3.3	1.32
Special Practice	11.8	3.6	.31
Hospital Beds, total	40.1	37.0	.92

Source: [42, p. 75].

TABLE 5

YEARS OF SCHOOL COMPLETED FOR MALES 25 TO 54 YEARS OF AGE,
1969 AND 1960

Educational attainment and year	Metropolitan area (1)	Outside metropolitan areas (2)	(2)/(1) (percent)
1969			
Number (millions)	22.6	11.1	
Percent	100	100	
Elementary: 8 years or less	15	27	180
High school:			
1 to 3 years	17	16	94
4 years	36	35	97
College:			
1 year or more	32	21	66
4 years or more	19	12	63
Percent completing high school	68	57	84
1960			
Number (millions)	21.4	11.2	
Percent	100	100	
Elementary: 8 years or less	26	39	150
High school:			
1 to 3 years	22	20	91
4 years	26	26	100
College:			
1 year or more	25	15	60
4 years or more	14	8	57
Percent completing high school	52	41	79

Source: [42, p. 97].

TABLE 6

EXPENDITURES* PER PUPIL OF LOCAL PUBLIC SCHOOL SYSTEMS
BY METROPOLITAN STATUS, 1967-68

	Metro-Central City	Metro-Other	Non-Metro
Amount ($)	$596	$604	$478

Source: [42, p. 105]. *Excludes transportation costs, food services, student
activities and similar costs.

physicians (on a per capita equivalent basis) and 92 percent of the

hospital beds of urban areas. Although non-metro areas had slightly

more general practice doctors--an indication, perhaps, of the presence

of relatively older physicians--they had only 31 percent of the specialized

physicians.

Tables 5 and 6 compare relative educational achievement of and

expenditures on occupants of metro and non-metro areas. As indicated

in the preceding figures, there is a systematic discriminant in favor

of the urban resident. Although educational expenditures by rural

local governments were 91 percent of those of urban governments,

expenditures of local school districts were only 80 percent. Thus, it

is not surprising that urban residents also have a significantly higher

educational achievement level. Further, relative educational

attainments of non-metro residents were only slightly improved in 1969,

as compared with 1960. Thus, in each of these spheres, there are

identifiable incentives which induce the general migration pattern

observed.

C.   Economic Environment of the Upper Midwest

There have been substantial changes in the Upper Midwest economy

in the period of the 1960's. From 1960 to 1971 (Table 7), there was

an 18 percent increase in the labor force (and slightly more than 7

percent increase in population), while agricultural employment fell by

more than one-third. Agriculture still accounted for 13 percent of the

region's labor force in 1971, down sharply from 23 percent in 1960.

This reduced rate is still approximately three times the national average.

TABLE 7

TOTAL EMPLOYMENT AND AGRICULTURAL EMPLOYMENT FOR MONTANA,
NORTH DAKOTA, SOUTH DAKOTA, MINNESOTA AND FOUR STATE
REGION, 1960, 1965 and 1971*

	Montana	North Dakota	South Dakota	Minnesota	4 State Region
1960					
Ag. Employment	39,000	91,750	81,400	267,000	479,150
Total Employment	233,863	235,761	245,804	1,328,987	2,044,415
Ratio	.17	.39	**.33**	.20	.23
1965					
Ag. Employment	35,200	74,750	66,450	229,400	405,800
Total Employment	243,429	237,312	238,126	1,426,976	2,145,843
Ratio	.14	.31	.28	.16	.19
1971					
Ag. Employment	28,142	54,321	48,428	178,000	308,891
Total Employment	273,686	258,346	247,875	1,631,400	2,411,307
Ratio	.10	.21	.20	.11	.13

*Source: [20, p.10] for 1960 and 1965. The Minnesota figures for 1971
were obtained from [32] and [34]. Based on the Minnesota figures for
1971 and the historical relationship which existed in 1960 and 1965,
the remaining state figures were estimated.

TABLE 8

TOTAL PERSONAL INCOME AND AGRICULTURALLY DERIVED INCOME FOR
MONTANA, NORTH DAKOTA, SOUTH DAKOTA, MINNESOTA AND
FOUR STATE REGION FOR 1965, 1969, and 1971
(in millions of dollars)*

	Montana	North Dakota	South Dakota	Minnesota	Four State Region
1965					
Ag. Income	201	336	316	628	1,481
Total Income	1,722	1,505	1,528	9,523	13,604
Ratio	.12	.22	.21	.07	.11
1969					
Ag. Income	265	395	349	683	1,692
Total Income	2,200	1,867	1,995	13,509	19,571
Ratio	.12	.21	.17	.05	.09
1971					
Ag. Income	288	444	403	780	1,915
Total Income	2,575	2,222	2,321	15,564	22,682
Ratio	.11	.20	.17	.05	.08

*Source: [51].

North and South Dakota were the most highly dependent on agriculture.
In 1971, 21 and 20 percent of their labor was agriculturally employed,
but even this is sharply reduced from the 39 and 33 percent level
recorded in 1960.

In the period from 1965 to 1971, total personal income for the
four-state region increased from $13.6 billion to $22.8 billion or an
increase of 67 percent (Table 8). At the same time, agriculturally
derived income increased from $1.5 to $1.9 billion or an increase of
29 percent. Thus, agricultural income over the period actually fell
from 11 to 8 percent of total personal income. Comparing this with
Table 7, we see that in 1965, 19 percent of the labor force earned 11
percent of the income, compared to 13 percent earning 8 percent of the
income in 1971. Both of these comparisons are consistent with the
results specified earlier, i.e., agricultural workers were earning
relatively less than nonagricultural workers. This discrepancy narrowed,
however, from 60 percent in 1965 to 73 percent in 1971. Statistics
on income for the states mirror the same pattern as the distribution
across states, but show a marked difference in time trend.

III. Problems and Issues

There are great differences between a static and a dynamic view of
financial market problems. In the static sense, it is the set of legal
and institutional impediments in the existing markets which concern us.
In a dynamic sense, however, it is the process of institutional
innovation which determines the success of the development process. In

the previous section, it was shown that the basic problem facing the

regional economy is the migration pattern induced by technology in

agriculture and income and social service differentials. Let us now

consider how problems arising in financial markets can either impede or

accelerate the basic migration flow.

Each sector in the region has a potential surplus of resources

which are not utilized for present consumption--that is, savings. They

are potential in the sense that if financial assets are not available,

then individuals will choose either to consume more or to accumulate

resources in a way that cannot be transferred.[1] Thus, if financial

markets are not functioning properly, capital will not be mobilized for

its most productive use. If this process occurs more in one sector

or area than in another, relative investment is retarded and

employment differentials are generated.

The process of saving mobilization involves the ability to generate

additional resources for investment. There is a second equally

important process, however, which directly influences the movement of

people and resources. That is the allocation of the resources already

available. Any flow of funds from rural to urban areas or out of the

region will be supportive of the migration pattern observed. Each of

the problems cited below relates to either a mobilization or an

allocation problem within financial institutions.

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[1]For instance, it could be argued that one alternative to saving is
having more children. Thus one secures his old age by having more
children to support him. In the case of the farm family, this also might
have the benefit of providing insured labor.

A. Agricultural Credit Problem

One of the most debated issues regards the existing financial

structure and whether or not it is adequate to finance the increasing

agricultural credit demand [2, 19, 22, 25, 26, 29, 34, 46]. Figures

1 and 2 illustrate why there is concern. Since 1948, farm debt has been

rising more rapidly than either farm income or farm assets. Over that

period, there has been a six-fold increase in total farm debt, while

income and assets have less than doubled. However, even at the end of

the period, the overall farm debt-asset ratio was less than 25 percent.

This is still about half that of the industrial sector [16].

Involved was a marked reduction in the agricultural savings rate.

> During the late 1950's, a significant change occurred.
> Farmers collectively reduced their savings rate from 27
> to 22 percent of cash flow. Consequently, internal
> financing met only two-thirds of capital spending and
> debt financing rose to one-third [36, p. 6].

The average debt-asset rate of 25 percent is still significantly below

the additional debt acquisition rate of 33 percent and leads us to

expect a continuation of the trends of indicated in Figures 1 and 2.

Table 9 presents a breakdown of farm debt by source for the four-state

region for 1970 and 1971. Total farm debt increased by 8.6 percent

compared with an average yearly increase in net farm income for the region

from 1965 to 1971 of 6.6 percent. The increase in farm debt was

dominated by the 14 percent increase in non-real estate debt. Real

estate debt increased by only 2.2 percent. Several features distinguish

this region from the nation. The increases in regional farm debt were

increasing at even a faster rate than for the nation. Also, whereas the

Figure 1:   Debts of U. S. Farmers Are Rising More Rapidly than Their
            Incomes

FIGURE 2: Debts of U. S. Farmers Are Increasing More Rapidly than
Their Net Worth
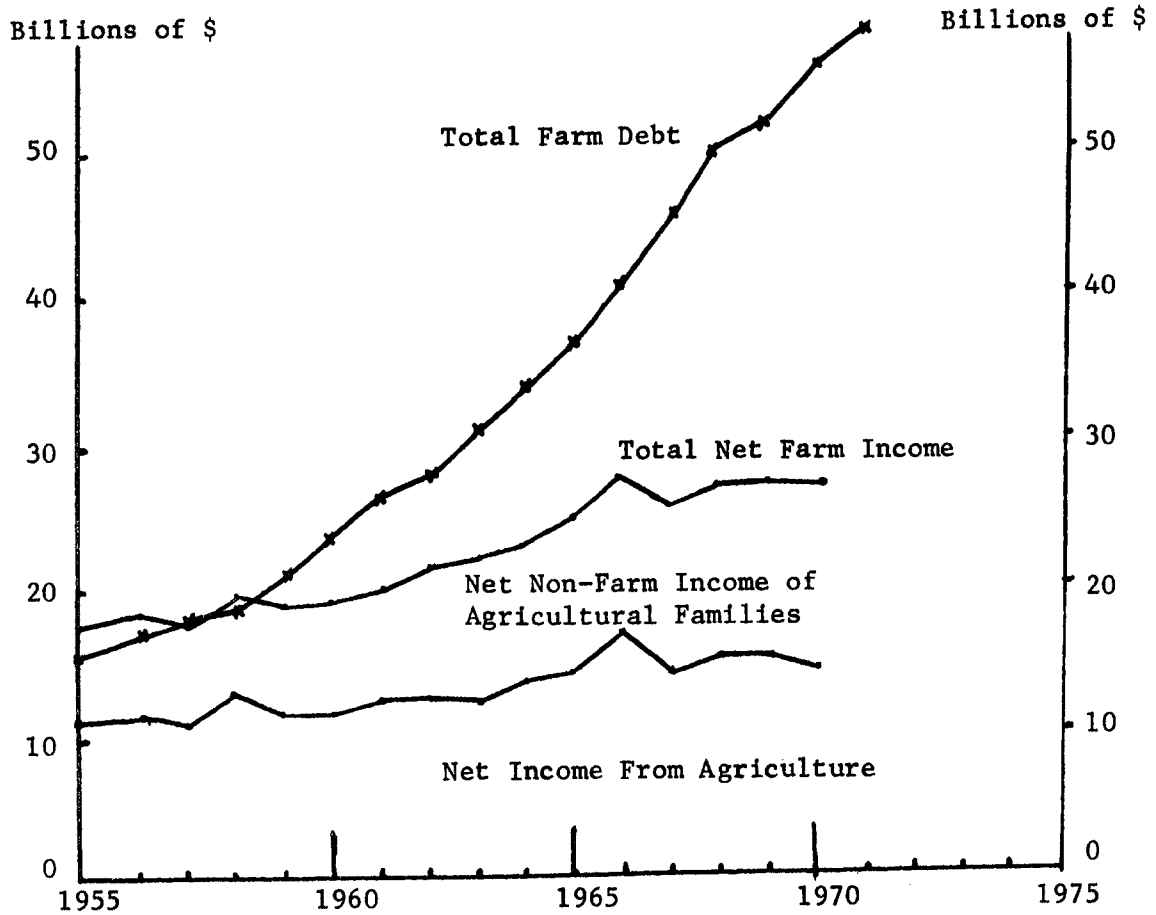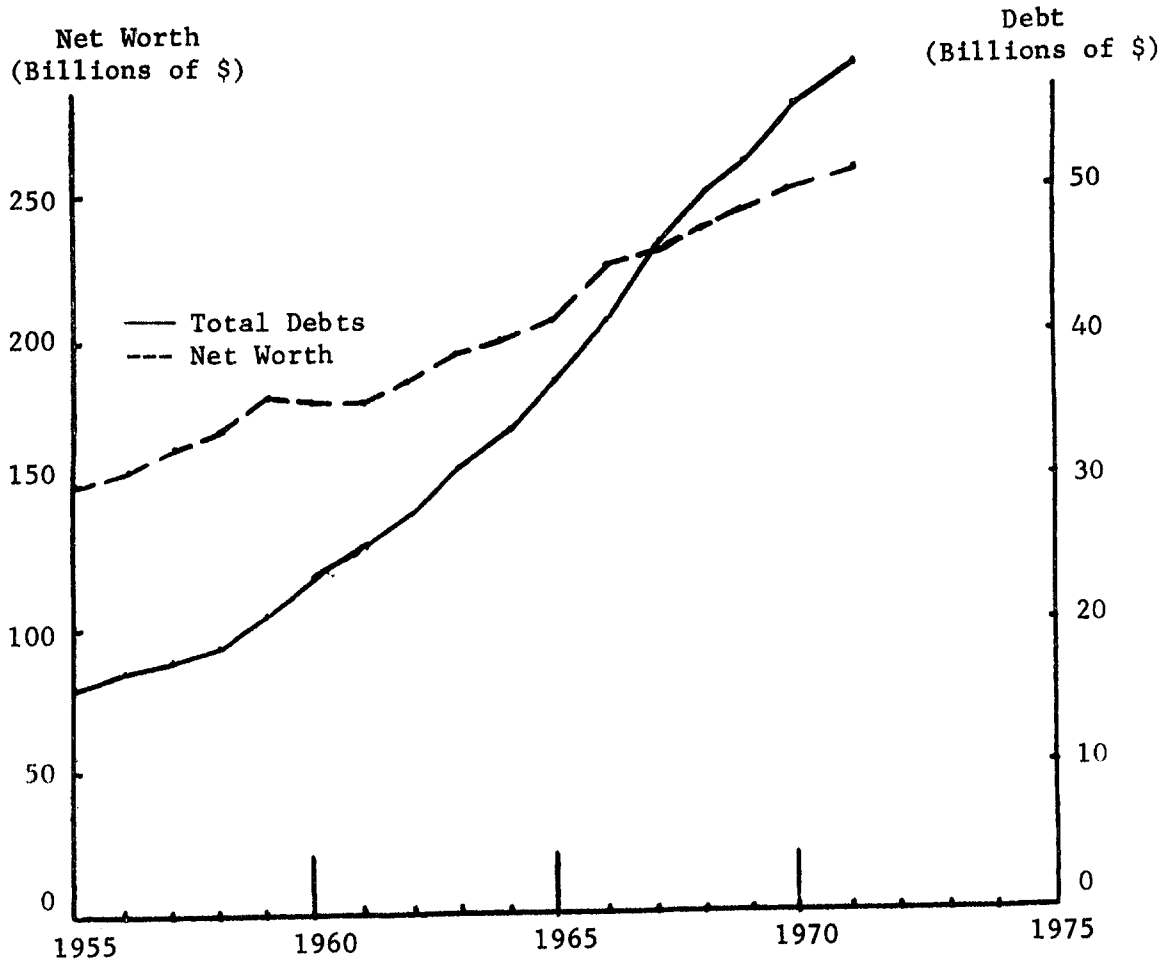
Source: Economic Research Division, Farm Credit Administration,
Washington, D.C.

national farm debt is evenly distributed between real estate and non-real estate, the region's debt is more heavily weighted to non-real estate debt. Although the single most important source of external finances is "individuals and other non-market sources" for both the nation and the region, individuals are an even more important source of credit in this region than nationally.

Of the institutional lenders, commercial banks provide the largest share of credit, followed by Farm Credit System lenders. However, while commercial banks appear to be maintaining or reducing their share of the agricultural credit market, the Farm Credit System lenders appear to be increasing their share substantially. Thus, between 1960 and 1970, on a national basis, commercial banks have reduced their share of the agricultural credit market by 1.5 percent. The Farm Credit lenders (PCA's and FLB's), however, have increased their proportion by 5.5 percent. This trend is even stronger in our region. Between 1964 and 1968, in 61 rural Minnesota counties new agricultural loans by PCA's and FLB's were on average 94 percent of new loans by commercial banks [47, Table 5], and the trend was consistently larger as the period progressed.

The Upper Midwest is characterized by unit banking systems and, as indicated above, commercial banks of the area are having increasing difficulty maintaining their share of this market. One can propose several reasons for this. More than 56 percent of Minnesota's 724 banks had less than $5 million in deposits in 1969 [17, p. 2], and the average deposit of banks in population centers of less than ten thousand was only

TABLE 9

REAL ESTATE AND NON-REAL ESTATE AGRICULTURAL DEBT BY SOURCE OF FUNDS AS OF JANUARY 1, 1971/
AND JANUARY 1, 1970 FOR MONTANA, NORTH DAKOTA, MINNESOTA AND FOUR STATE REGION*

	Montana		North Dakota		South Dakota		Minnesota		Four State Region		United States	
	1970	1971	1970	1971	1970	1971	1970	1971	1970	1971	1970	1971
Real Estate Total Amt.($1,000,000)	537	557	514	539	432	438	1,149	1,157	2,632	2,691	28,387	29,506
Percent Change	3.7		4.5		1.4		0.7		2.21		3.9	
% Distribution: Federal Land Bank	32.7	33.8	29.5	28.6	36.7	37.8	23.9	24.7	28.7	29.5	23.5	24.2
Insurance Companies	20.5	19.7	5.1	4.5	20.0	18.6	18.7	17.6	16.6	15.6	20.2	19.0
Commercial Banks	2.8	2.9	13.5	14.6	6.8	7.3	11.6	12.1	9.4	9.9	14.5	15.0
Farmers Home Admin.	1.2	.7	2.9	2.0	3.3	2.5	1.2	.9	1.9	1.8	1.6	1.2
Individuals	42.7	42.9	50.1	50.3	33.3	33.8	44.6	44.7	43.4	43.7	40.2	40.6
Non-Real Estate Total ($1,000,000)	530	619	874	649	749	879	1,260	1,402	3,113	3,549	27,044	29,738
Percent Change	15.8		13.1		17.4		11.3		14.0		10.0	
% Distribution: Production Cred. Ass.	17.8	19.1	17.5	18.0	11.4	12.2	15.6	16.4	15.3	16.6	16.6	17.8
Other Finan. Instit.	--	--	.7	.8	.2	.1	.6	.6	.4	.4	.8	.7
Farmers Home Admin.	3.3	2.6	4.7	4.7	5.0	4.4	2.1	1.9	3.5	3.2	2.9	2.7
Commercial Banks	37.4	36.6	35.6	34.9	41.9	41.8	41.1	39.5	39.2	38.7	38.2	37.3
Indiv. & Other a/	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5
Total Debt	1,067	1,176	1,088	1,188	1,181	1,317	2,409	2,559	5,745	6,240	55,434	59,245
Percent Change	10.2		9.2		11.5		6.2		8.6		6.8	

*Source: Real estate debt from [12] and non-real estate debt from [11].

a/ Assumed to be equal to national level of 41.5.

$5.2 million in 1968 [47]. Although average deposits nearly doubled between 1960 and 1968, it has been shown that efficient banking is not generally achieved until the $10 million deposit size [1].

The implications of this situation manifest themselves in several ways. The increasing scale of agriculture implies not only a larger total credit demand, but also a significantly larger average credit demand. The low loan limits imposed on these small banks make it increasingly difficult for them to meet the credit demands of commerical agriculture. This judgment is supported by comparing the average farmer with a typical PCA borrower.[1/] The PCA borrower is younger, has a larger farm, and uses more credit than the average farmer.

There are other limitations inherent in small banking units. Small banks are unable to provide specialized agricultural loan officers. It has been estimated that fewer than 10 percent of the banks in Minnesota have trained agricultural personnel [52, Session II]. This has several implications on commercial bank agricultural lending. First, they can provide only minimum managerial assistance to their farm customers. They do not have access to or utilize programmed analysis of farm financial operations. Thus it is increasingly difficult for them to evaluate loans based on economic criteria (such as potential return) and personal associations and security agreements become increasingly important. This has the net effect of restraining innovative individuals

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[1/] See "Characteristics of New Production Credit Association Borrowers," St. Paul Federal Intermediate Credit Bank, 1971.

in favor of those more firmly established.

One further attribute of small rural banks limits their ability to serve the interests of agriculture and their community and this relates to their limited capacity to obtain and utilize non-local resources. Several factors mitigate against this: (1) there is a large fixed knowledge cost to entering national markets, (2) funds obtained on the Federal Funds market involve large fixed denominations which are more than the local bank can use effectively at any one time and (3) funds from correspondent banks usually require compensating balances and are obtained at such "high" cost that the return to the local banker is so substantially below that normally received as to make it economically undesirable.

However, although there appear to be limitations on the ability of the banking system in providing agricultural credit, this is not necessarily indicative of an agricultural credit problem. It is possible, and indeed seems likely, that the Farm Credit System is providing all the additional credit that is demanded. The efficiency of the banking system in the rural area potentially has more serious effects outside of agriculture, and it is to this question that we now turn.

B.   The Rural Credit Problem

Whereas agriculture has alternative sources of credit, the rural economy outside of agriculture has limited access to financial markets other than commercial banks. Thus, any inefficiency of the banking system will most likely manifest itself in a reduction in the level of

non-agricultural economic activity.

The analysis behind this is:

1. The available credit for agriculture, which we already observed to be growing relatively faster than either farm assets or income, is utilized to purchase investment items incorporating labor saving technology. We noted the substantial reduction in farm labor over recent years.

2. The labor saving technology generates a surplus of labor in the rural community.

3. The limited availability of non-agricultural rural finance relative to demand implies a reduced rate of rural investment and consequently alternative employment opportunities are not available in the rural community.

4. The surplus labor migrates to urban areas in search of employment possibilities.

5. As the population of the rural areas decreases, the economic viability of the rural areas likewise decreases. This supports the trend already observed.

And so the cycle continues.

Several inefficiencies have already been noted in relation to bank financing of agriculture. However, there are several other factors which also imply problems for banks in their role as financers of rural economic activity. During the period of the 1960's, the average loan-to-deposit ratio difference between banks located in towns of population less than one thousand and reserve city banks was 8.6 percent [47]. This difference widened over the period, so that by 1968, the difference was more than ten percent and in 1970 close to 15 percent.[1]/ The growing differential between the lending behvaior of rural and urban banks is one more factor which tends to accelerate the problems of the rural areas.

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[1]/Of course, part of the difference of the latter period reflects tight money conditions of 1969 and 1970.

Another basic problem facing the current banking system is the failure of the correspondent banking mechanism to provide resources for the rural areas. This problem has been referred to elsewhere [31, 36, 46]. In 1969, almost $358 million net deposits of rural banks were held by Twin Cities correspondent banks. This is almost twice the size of all agricultural loans of commercial banks in towns of less than one thousand in Minnesota in 1968 or 15 percent of total agricultural debt in Minnesota in 1971. Further, it has been suggested that the total rural balance in Twin Cities savings and loan associations may be as much as twice that amount. The impact of this resource drain on the relative levels of economic activity in the rural and urban areas is hard to measure precisely. However, this evidence does indicate a serious differential between the ability of urban and rural based financial institutions to mobilize and effectively allocate financial resources.

A third set of problems is generated not by any primary economic disequilibrium, but rather through legal imposition. In the next sections, several issues involving relevant legal restraints will be discussed.

C.   Usury Laws

The   first enactment of a usury law in Minnesota was 1877. Although there have been numerous modifications in the act since that time, usury laws are still enforced in Minnesota and elsewhere in our district. The general statement of the law sets a maximum interest rate of eight

percent per year. However, there are so many exceptions, that it is only on conventional and farm mortgage loans that the eight percent limit is still binding.

During most normal periods, the eight percent limit is high enough so that no restriction is imposed on the financial markets. However, in the period 1969 and 1970, the competitive level of interest rates went significantly above eight percent and the usury limit became binding. It was during this period that the usury law became an issue.

As the impact of the usury law has been examined elsewhere [44], only the results will be summarized here. Based on the economic analysis of ceiling prices, one would expect the results of a binding usury law to be:

1. A situation of excess demand for credit in the markets directly affected.

2. A relative increase in the availability of credit in those substitute areas not directly affected, and

3. A substantial reduction in the effective demand for the item to be financed.

In Minnesota, during the period 1969-1970 each of these impacts was apparent. Thus:

1. The downpayment requirements and points on the seller more than doubled on conventional mortgages between 1968 and 1969-1970,

2. one- and two-family housing starts, the directly affected area, fell by 25 percent over the same period, and

3. one- and two-family housing starts fell from 42 percent of total housing starts in 1968 to only 33 percent in 1969.

Although it is relatively easy to specify the costs of usury laws, the benefits are more difficult to determine. Certainly, those individuals who manage to obtain funds at the usury limit are better off than they otherwise would be, but one must weigh this against all those who cannot obtain credit and would like to. The disproportionate effect on one- and two-family housing starts compared to total housing starts implies that an unrestrained outcome would have involved building many more of the smaller relative to the commercial units.

One other aspect of usury laws which is particularly troublesome is that in a situation of excess demand for credit, the price mechanism no longer functions to allocate the available resources. Thus other rationing mechanisms must be introduced. Although there is no explicit evidence to indicate black marketing as such, the increased down payment requirements and the temptation to make loans on the basis of connection instead of need is always present.

D.   Regulation Q and Other Saving Rate Restrictions

A related question which involves the allocation of the supply rather than the demand for funds is the restraints on savings interest rates such as regulation Q. By artificially preventing saving and time deposit rates from adjusting to competitive levels during periods of high interest rates, a situation is created whereby loanable funds will move from regulated to non-regulated markets.

By the end of 1969, competitive bond yields were well over 9 percent. At the same time commercial bank time deposits were restricted to 4.75 percent and savings and loan associations were restricted to approximately

5.25 percent.[1] Under these conditions, we would expect to see a substantial movement of funds out of banking into national money and bond markets. Indeed, total deposits of Twin Cities commercial banks fell by 10 percent or $430 million between 1968 and 1969. Of the total loss of deposits, over $330 million was due to a reduction of time deposits—or time deposits fell by 20 percent. If the reduction of all regulated savings deposits in Minnesota was of the same magnitude as that of commercial banks, then the total of loanable funds was reduced by over $650 million by the restraints.

These restrictions are imposed at the national level and utilized as a means of controlling monetary aggregates. Since the unrestricted markets tend to be national in scope and to lie outside our region, the main impact during tight money periods such as 1969-1970 is to cause a substantial outflow of funds from our region. From a regional perspective, it is not clear that this type of control mechanism is the most efficient and unbiased that could be utilized or devised. Further, it is questionable whether national policy should create a situation to penalize small savers and borrowers who can't move into the unrestricted national money markets.

E. Bank Structure

A final issue of legal restraint revolves around the question of

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[1] There were special classes of deposits such as CD's which paid higher rates, but they were restricted in such a way as to exclude the majority of savers.

bank structure. This is an issue which has been extensively analyzed

elsewhere [14, 17, 18, 23, 39, 45, 48] and many of the elements of the

problem have been alluded to earlier in the paper. It is, however, a

relevant issue since three of the four whole states of the region out-

law any form of branch banking.[1]/ A summary of the key elements of

this issue is presented below.

1. The rural areas of the region are characterized by small
   commercial banks. As of 1968 almost 1100 of the approx-
   imately 1400 banks of the region were located in towns
   with less than 1,000 population. The average total
   deposits of all banks located in towns of less than
   10,000 was only slightly more than $5 million [47].

2. Small rural banks face a risk diversification problem
   which manifests itself in relatively low loan-to-deposit
   ratios--ratios which averaged approximately 10 percent
   below Twin Cities banks over the 1960's.

3. Unit banking systems tend to result in a lack of mobility
   of funds either through regional correspondents, parti-
   cipation and pooled loans or access to national money and
   Federal Funds markets.

4. Empirical comparisons of branch and unit systems indicate
   that loan-to-deposit rates are higher, service character-
   istics improve and mobility of funds increases in branch
   as compared to unit systems.

An interesting element of the debates regarding branch banking is

that they tend to treat the banking system in isolation rather than as

part of the broader problem of rural credit. In this regard, a brief

historical perspective appears noteworthy:

In 1890, when Breckenridge examined the interregional

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[1]/Minnesota, Montana and North Dakota are unit banking states while
South Dakota allows de facto branching statewide. Both Michigan and
Wisconsin allow limited branching.

> interest rate differentials, he concluded that they
> were permanent and attributed them to the legal barriers
> that prohibited branch banking in the United States.
> With the omniscience of hindsight, it is obvious that
> these differentials have been reduced. Moreover, the
> reduction did not result from the passage of laws
> permitting interstate banking. Instead a series of new
> financial institutions capable of surmounting the barriers
> raised by distance and by the lack of adequate branch-
> banking legislation was innovated [8, p. 368].

Thus, there may be a lesson to be learned from history. Although the legalization of branch banking in our region appears to be one possible way of improving the rural financial environment, it is by no means the only way. If the banking system does not adapt to the changing demands placed upon it, other institutions will be motivated to do so and, over time, can be expected to do so. The recent change in the lending authority of the Farm Credit System might be recognized as an initial move in that direction.

Given the current political climate in the region and particularly Minnesota, no liberalization of branch banking prohibitions can be expected. However, in lieu of this, feasibility of other innovations which will increase the availability of financial resources for the rural community can and should be considered.

F.   Regulatory Impediments

One last set of issues involving the regulatory process appears worthy of discussion. These issues are of particular concern to members of the banking community [52]. Two issues in particular are consistently mentioned: the problem of supervisory attitude and the problem of divergent requirements of different commercial bank regulatory agencies.[1]

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[1] There are at least three separate regulatory agencies: Federal Reserve, F.D.I.C. and State Banking Commissions.

There appears to be a conflict between the need for safety as
viewed by bank examiners and the demands of the community for loanable
funds. The objectives of bank examiners and bank management need to
be reconciled. Although safety is an important element of any banking
system, the bank insurance schemes prevent any major dislocation due to
bank failures. Consequently, more explicit standards which weigh
alternative objectives for the banking system need to be developed.
It is desirable for the banking system to take some risks and it is
a question of evaluating the risk against the benefit to the community.

Different regulatory requirements appear as a consequence of
multiple regulatory agencies involved in commercial banking. This has
the effect of unequal treatment of similar groups. A notable example
of this is the higher reserve requirements faced by Federal Reserve
member as distinct from non-member banks [36]. This has two effects:
(1) it discourages Federal Reserve membership for small state banks, and
(2) it reduces loanable funds of member banks.

IV. Researchable Topics

In the preceding section, the following broad problem areas were discussed:
(1) the agricultural credit problem, (2) the rural credit problem (3) legal impedi-
ments and (4) regulatory impediments. In this section, broad research topics will
be outlined as a means of analyzing one or more of the problems presented
above.

A. Supply and Demand for Finance

Initially several criteria were proposed to evaluate the efficiency of
the financial markets. The basis of these criteria was a matching of the
supply and demand for finance. However, no estimates of the supply and demand
for finance on a regional basis are available. Consequently, the first re-
search topic is the development of those estimates. It is proposed that this
be conducted in two stages: descriptive estimates and analytic estimates.

The descriptive stage would involve the generation of a financial source
and use table for the region. This would parallel existing flow of funds
data on a national level, although the derivation of financial balance sheets
for the major sectors of the region would be derived first. Also, the data
would initially be developed on a more aggregated basis than existing national
data. The development of this data would present us with a basic description
of the regional credit markets and aid in evaluating the weaknesses and strengths
of the current system. Further, such questions as the magnitudes of the move-
ment of funds between the rural and urban areas of the region and between the
region and the nation could be answered. Since an evaluation of these flows
is central to determining credit market policies, this would be an
important first step.

With the development of flow of funds and descriptive supply and demand
estimates, derivations of analytic supply and demand function by sector should

be developed for the region. In terms of the specification of these functions, the following breakdowns will be used.

(1) The distinction between internal and external funds is basic.
    In agriculture nationally, approximately 25 percent of asset
    accumulation is financed externally while industry finances
    approximately 50 externally. It is this external portion which
    constitutes the explicit demand for finance.

(2) Funds are utilized for basically two purposes, short term pro-
    duction finance and long term investment finance. Investment
    finance could be subdivided further into equipment finance,
    plant finance, land finance and inventory finance. Depending
    on how you view this, livestock investment could be viewed as
    either a type of inventory or equipment.

(3) Combining the first two characterizations, the demand for
    finance is a function of investment (D_{inv}) and production
    (D_{prd}) credit needs and is supplied by internal (S_{int}) and
    external (S_{ext}) credit supplies. In an ex post sense, these
    must be equal. Thus:

(A) $$S_{int} + S_{ext} = D_{prd} + D_{inv}$$

By defining behavioral relationships underlining the four terms of equation (A) an analytic specification is obtained. Let us take each term at a time.

Internal financing is equivalent to internal saving. In a simplified way, this is a function of cash flow (Y) or an income flow for each sector. Thus

(A.1) $$S_{int} = s (Y)$$

The supply of external finance is more complicated. Basically it reflects the total flow of saving resources into regional financial assets of various

kinds plus the net flow of funds from national to regional financial markets. The regional generation of loanable funds is a function of the total income of the region and the relative return of financial assets compared with direct (internal) investment opportunities. The net movement of funds between the national and regional financial markets is a function in the short run of interest rate differentials and in the long run of migration patterns and economic differentials. This can be summarized as follows:

$$(A.2) \quad S_{ext} = sf\ (Y) + S_{net}\ (i_r - i_n)$$

where sf (Y) is the regional generation of loanable funds or equivalently, the flow demand for regional financial assets and S_{net} is the net flow of funds from national to regional financial markets.

The demand for production credit is a transaction flow demand for money and is a function of cash flow by sector, i.e.:

$$(A.3) \quad D_{prd} = d_i\ (Y_i)$$

where i runs over sectors. Finally, the demand for investment finance is a function of total output (O) by sector, the rate of return of investments, the marginal efficiency of capital (r), the cost of finance (i), the interest rate, the composition of investment demand between the different components of capital (C_k) and the rate of technical change (T). Thus we get:

$$(A.4) \quad D_{inv} = D_{inv}\ (O,\ r,\ i,\ C_k,\ T)$$

In addition, it is proposed that the following sectors be considered: (1) agriculture, (2) industry, (3) rural household, (4) urban households, (5) local and state governments and (6) federal government. Thus it is proposed that a supply and demand function be derived for each of these on a regional basis.

Crucial for this analysis is the availability of time series data for each of the main series indicated above for each sector regionally. It is clear that many of the data series required are not now readily available on a regional basis. Thus a prime task will be the location and estimation of the various data needed. Since this is an ambitious project, success will depend in a central way on the degree of cooperation received from the regional and federal institutions responsible for collecting the relevant data. As such, it is proposed that a preliminary feasibility study be conducted to determine the exact availability of data and the process by which the remaining data can either be estimated or generated.

B.   Impacts of Legal and Institutional Restraints

Various studies could be conducted utilizing the framework developed above or using impact analysis. The impact of legal and institutional restraints is a fertile area for research for two reasons. First, if it can be shown that a certain restraint is a significant bottleneck for the development of the region, it is possible to take recourse to the legislative process and alter the existing legal framework. Second, legal restraints are usually well defined and economic analysis can provide explicit estimates of the costs of the restraints which can be compared with the social benefits envisioned. In this way economic analysis can be a useful adjunct for economic policy decisions.

C.   Institutional Innovations

Various changes in the financial environment have been enacted and/or proposed. One possible set of research proposals would be the effects of these changes on the region's economy. Several studies of this type which seem relevant for our region are listed below:

1. The impact of the Rural Development Act.

2. The impact of the new Farm Credit Administration legislation.

3. The impact of changes in the Federal Reserve discount policy.

4. The impact of change in the correspondent banking mechanism.

5. The impact of a Rural Development Bank.

And so on.

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