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## SHIFT-SHARE ANALYSIS OF INCOME AND EMPLOYMENT AMONG RURAL AND METROPOLITAN COUNTIES OF ILLINOIS\*

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### Introduction

Growth and change in the economy of Illinois have introduced differential change into the levels of income and employment, as well as their sources among regions and economic sectors in Illinois. Of particular interest in this paper is the differential change in income and employment of rural areas compared to metropolitan areas particularly with respect to the changes which may have been precipitated by location of industrial expansion or transfer.

With the enlargement of farms, increasing size of machinery, and greater capital investment, there has been a substantial reduction of labor used on farms in Illinois. With better transportation and roads, farmers also began going farther to get their various inputs such as machinery and the repairs and services associated with these inputs. They also began going farther to obtain family consumption items such as clothing and appliances and services such as recreation and medical. Thus there was a decline in local agriculturally related service and manufacturing employment opportunities as well as farm related employment opportunities in rural counties.

Attention began to be focused on non-farm economic alternatives which would provide a new injection of economic vitality in rural areas. Rural industrialization became the byword by many interested in trying to solve problems of declining opportunities in agriculture and business in rural counties. Political effort along such lines resulted in federal legislation beginning in the 1960s and culminating with the Rural Development Act of 1972 which stated in part that "the creation of rural employment and an effort to increase rural and non-rural income business activity" was one of its main thrusts, and this effort would be largely through rural industrialization [15].

A number of studies have attempted to analyze the local effects of a new industry coming into a rural area [14]. In general these studies find some local improvement in income, employment, and general business activity

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as a result of infused industrial activity. However, the change is frequently less than expected and is quite diverse in nature and spread over greater geographical area than many would hypothesize. Often people outside the local area obtain most of the newly created jobs. Rural industrialization if properly planned, can and does improve income, employment, ancillary business activity and increase the tax base which can help support a higher level of public services [1, 12].

### Shift-Share Analysis to Describe Change in Economic Sectors Among Regions

Since previous studies have had difficulty measuring the economic impact on a local basis, because of the apparent diffusion of the impact over a wider area, this study tries a different approach. We try to measure economic impact by rural and non-rural subregions within the State of Illinois by shift-share analysis. These regions are selected aggregations of counties and are larger than the usual geographic areas selected for many economic impact studies which often look only at a town or a county.

Shift-share analysis is a technique which describes the changes and trends of one or more variables over time in subregions relative to change in a larger region. The data we use for income analysis are unpublished county income estimates by category from the Bureau of Economic Analysis, U. S. Department of Commerce [5, 6] explained by their publication [7]; and the employment data is taken from the County Business Patterns published by the U. S. Bureau of the Census [16, 17] for the two years 1962 and 1972. The employment data in the Business Patterns publications reports all employment covered by the Federal Insurance Contributions Act. This is by place of work. The data used were those which correspond to the primary category headings under the Standard Industrial Code Classification scheme. Certain selected 2-digit level employment categories also were used as shown in Tables 6, 7 and 8. The income data used is personal income from all sources before taxes of the residents of a county. Personal income is derived by summing wage and salary disbursements, other labor income, proprietors' income, property income, and transfer payments, minus personal contributions for social insurance. To convert this from a place of work basis to a place of residence basis, account is taken of the net flow of commuter earnings by adding or subtracting a residence adjustment to obtain income by place of residence. Further explanation of the place of residence adjustment is given in "A Summary Description of the Sources and Methods Used in Estimating County Personal Income" [7]. After examination of the data, some of the rural counties which were geographically adjacent to metropolitan counties displayed some of the characteristics of the metropolitan counties and some of the characteristics of the rural counties which were more isolated from metro areas. Thus we examined the rural counties in two groups--regions which we called rural adjacent regions (which were the rural counties which were contiguous to metro counties), and rural non-adjacent regions which contained strictly rural counties (which had one county or more lying between them and a metro county). To substantiate our hypothesis on the regionalization scheme we are using for the shift-share analysis, we first performed an analysis of variance with counties as observations within regions and the three foregoing regions as the treatments in the analysis of variance. Results are shown in Tables 1 and 2. These results show a significant difference among the hypothetical regions with respect to both employment and income change.

TABLE 1: Analysis of Variance Results for Differences Among Regions for Change in Total Employment, 1962-1972

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio	Probability of Type I Error
Among Regions	2	10,202,099,000	5,101,049,600	6.93	0.0015
Within Regions	99	72,846,441,000	735,822,630		

TABLE 2: Analysis of Variance Results for Differences Among Regions for Change in Per Capita Personal Income, 1962-1972

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio	Probability of Type I Error
Among Regions	2	915,727	457,864	3.53	0.0329
Within Regions	99	12,828,262	129,578		

Shift-Share Analysis of Income and Employment

The shift-share technique used here analyzes change in a variable by assuming there are three components affecting change. These components are the changes which occurred for the universe being observed, for the regions within that universe, and thirdly for subparts of the variable itself. For example with regard to employment, overall state growth is assumed to be one component, and the third component is the difference in growth among economic sectors or industries (the industry-mix) which add up to the total change in employment [3, 8]. If a region has approximately the same mix of industries as the state as a whole, then a faster or slower change in that region relative to the state as a whole would have to be attributed to other attributes unique to that region. Favorable "share effects" (attributable to a region) "depend chiefly upon locational advantages that particular regions offer in terms of input resources, transportation, and product markets" [11]. The individual mix and the regional share factors are the shift components of the model. The sum of the industrial mix and regional share components is called the net relative shift and shows the region's performance relative to the state. While there also is a two component shift-share model, in order to appropriately handle both shifts among regions and shifts among economic sources of employment and income (or industry-mix) as well as state growth, the three components shift-share model used successfully by others in regional analysis is used here [2, 8, 9].

Thus with shift-share analysis we should be able to determine whether there has in fact been differential growth among our three regions and what this differential growth is among economic sectors in the rural counties of Illinois. While shift-share will give a description of what has happened between the two time periods selected, it says nothing about causation. However, if we find that industrialization has increased relatively in the rural regions, the shift-share results would be evidence to help ascribe that increase to the many programs instituted by local rural development groups, and the rural development programs at the various levels of government.

The shift-share model used here may be described mathematically as follows:

<u>Component</u>	<u>Formula</u>
1. State share	$S_i(b) \left[ \frac{STX(t)}{STX(b)} - 1 \right]$
2. Industrial or component mix shift	$S_i(b) \left[ \frac{SS_i(t)}{SS_i(b)} - \frac{STX(t)}{STX(b)} \right]$
3. Regional share	$S_i(b) \left[ \frac{S_i(t)}{S_i(b)} - \frac{SS_i(t)}{SS_i(b)} \right]$
4. Total change	$S_i(t) - S_i(b)$

where

STX = the state total change for the variable being analyzed

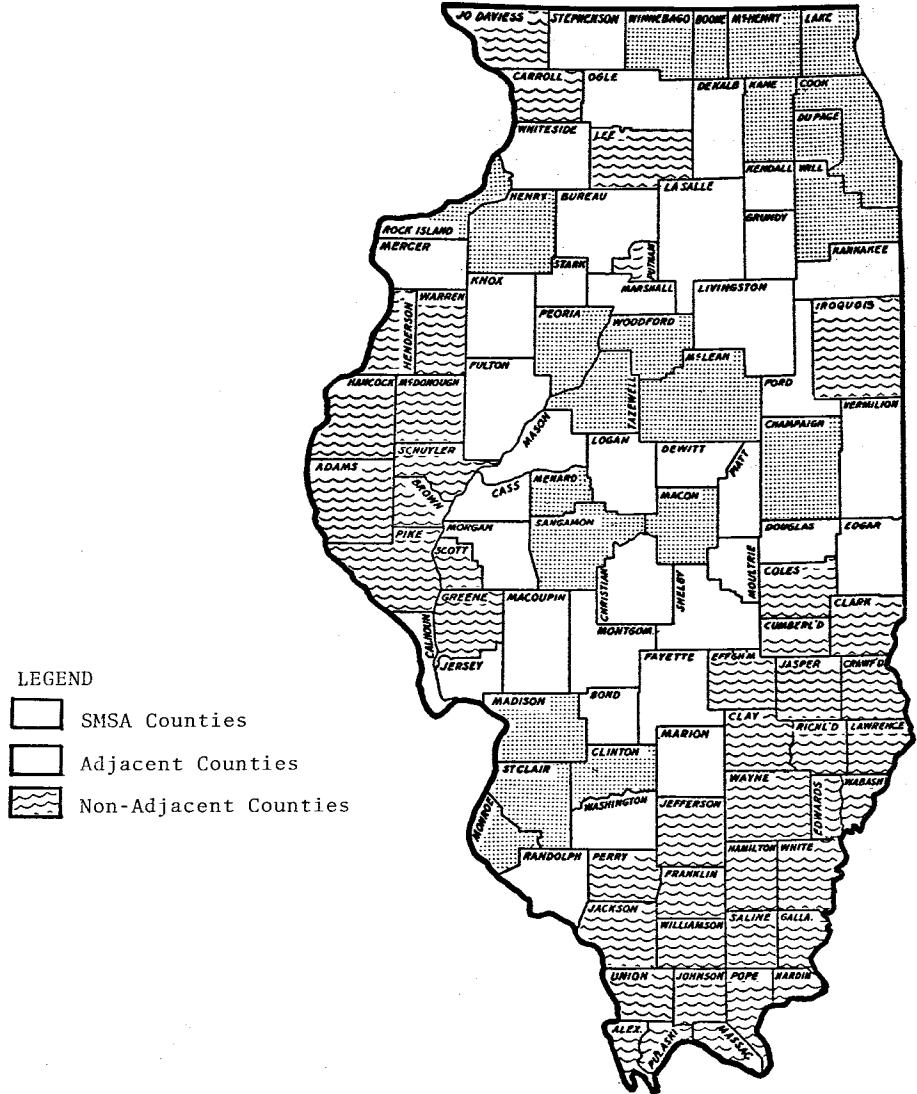


Figure 1. County Groups Included in the Study

$S_i$  = regional total changes of the variable for industry or component  $i$ ;  $i = 1, 2, \dots, m$

$SS_i$  = the state total change of the variable for industry or component  $i$

(b) = the beginning of the period

(t) = the end of the period

### Shift-Share Results for Income

Income shift-share results for the metro regions in Illinois from 1962 to 1972 are given in Table 3. Income growth in metro areas (Table 3) was 24.2 billion dollars from 1962 to 1972, but the state growth effect was 400 million more than that and was negated mainly by the declining regional share.

In Table 3, labor and proprietary income is divided into its farm and non-farm components. Non-farm income is further subdivided into private and public sources. This allows more detail with regard to change in industrial composition.

Farm sources added approximately 35 million dollars to personal income growth in metropolitan counties during the period of analysis. However, both the component mix effect and regional share effect were negative, indicating that farm income was not only a slow increase component, but also that metro areas received a declining share. The state change effect was positive. Metro areas had a net relative farm income loss of approximately 183 million dollars. Non-farm income change paralleled that of labor and proprietary income. This was to be expected given that non-farm income accounted for more than 99 percent of total labor and proprietary income in metro areas. Manufacturing, wholesale and retail trade, service, and state and local government employment were the largest contributors to non-farm income change. Together they accounted for more than 84 percent of non-farm income change during the period of analysis. According to the component mix effect, manufacturing, transportation, mining, wholesale and retail trade, other industries and federal military were income sectors where income increased at a rate less than total personal income. Contract construction, finance, services, federal civilian, and state and local government were rapid growth income sectors. Perhaps significantly, those economic sectors which had rapid rates of income increase during the period of analysis were oriented toward an economy at a high level of mass consumption.

The regional share factor indicated that contract construction, transportation, other industries, federal civilian, and the federal military economic sectors were increasing at a more rapid rate in metro areas than in the state as a whole. These sectors added approximately 114 million dollars to metropolitan personal income change on a relative basis. Manufacturing, mining, wholesale and retail trade, finance, services, and state and local government income were increasing less rapidly in metropolitan areas than in the rest of the state. On a relative basis, these sectors accounted for a shift of approximately 467 million dollars of income out of metro areas.



TABLE 3: Shift-Share Analysis of Personal Income Change in Metro Regions of Illinois 1962-1972 (thousands of dollars)

Source of Income	Income Change 62-72	Components of Income Change			Net Shift
		State Growth	Component Mix	Regional Share	
Total labor and proprietors income by place of work	18,970,668	20,447,425	-1,344,225	-132,532	-1,476,757
By Industry					
Farm	34,903	218,233	-110,441	-72,889	-183,330
Nonfarm	18,935,765	20,229,192	-1,006,899	-286,528	-1,293,427
Private					
Manufacturing	5,386,325	7,164,519	-1,444,178	-334,016	-1,778,194
Mining	23,056	73,074	-33,331	-16,687	-50,018
Contract construction	1,306,192	1,218,515	63,914	23,763	87,677
Wholesale, retail trade	3,284,190	3,836,136	-532,387	-19,559	-551,946
Finance, insurance, real estate	1,193,746	1,208,315	4,888	-19,457	-14,569
Trans., Comm., public utilities	1,585,992	1,683,038	-157,470	60,424	-97,046
Services	3,018,518	2,811,702	243,705	-36,889	206,816
Other industries	32,113	21,346	-4,084	14,851	10,767
Government					
Federal, civilian	570,231	554,800	1,767	13,664	15,431
Federal, military	198,772	244,239	-46,635	1,168	-45,467
State and local	2,340,745	1,403,668	977,198	-40,121	937,077
Less personal contributions for social insurance	1,209,253	595,933	620,767	-7,447	613,320
Resident adjustment	-83,871	-48,429	203,221	-238,663	-35,442
Property income	3,638,594	3,311,608	507,781	-180,795	326,986
Transfer payments	2,854,894	1,473,673	1,279,789	101,432	1,381,227
Total personal income	24,171,032	24,588,344	25,799	-443,111	-417,312

Source: U.S. Dept. of Commerce, Unpublished Data on Personal Income. [4, 5]

Structural changes in metropolitan income have been oriented toward increasing shares of those industries which provide consumer goods and services. Change which occurred in wholesale and retail trade and finance represent apparent aberrations in this pattern of change. However, the large positive state growth effects for wholesale and retail trade and financial services suggest that these economic sectors are well developed in metropolitan areas. Metro areas had a slow growth complement of manufacturing industries and a competitive economic environment which detracted from manufacturing income growth. The large, well-developed metropolitan manufacturing base which existed in 1962 would have generated approximately 7.2 billion dollars of income if it had increased at the state rate for all industry. However, the actual increase was only 5.4 billion because of negative shares in both component mix and regional share.

Results of the shift-share analysis on income change in the adjacent areas is summarized in Table 4. Table 5 shows the shift-share results for the strictly rural areas or (non-metro, non-adjacent). In contrast to metro areas, the regional share component contributed significantly to personal income growth in non-metro areas. Farm income had its largest absolute increase in the non-adjacent non-metro areas. Likewise, the non-adjacent classification was the only classification which recorded a positive regional share effect for farm income. Income earned in service industries yields somewhat surprising results. Service income, as expected, was found to be increasing rapidly in Illinois' economy. The component mix accounted for approximately 16 million dollars, and 10 million dollars additions to the service sectors of areas adjacent to metro areas and non-adjacent, respectively. The regional share added over 8 million dollars to the service sectors of the adjacent region during the period of analysis.

Manufacturing, state and local government, wholesale and retail trade, services, transportation, and contract construction were the largest contributors, respectively, to non-farm income growth in non-metro areas adjacent to SMSA's. In non-adjacent areas, manufacturing, state and local government, wholesale and retail trade, services, and mining contributed over 77 percent of the change in non-farm income.

As opposed to SMSA areas, both adjacent and non-adjacent areas had regional share effects for manufacturing which were positive. In each case the regional share increase outweighed the negative industry-mix share and generated a net relative shift of manufacturing income into the rural areas. The regional share factor contributed about 35 percent or 235 million dollars to the income growth of the manufacturing sector in areas adjacent to SMSA areas and approximately 45 percent or 129 million dollars to the growth of manufacturing income in non-adjacent regions. After accounting for the drag created by the negative effect of the component mix, the net relative shift accounted for 16 percent or 115 million dollars of manufacturing income growth in areas adjacent to SMSA counties and 31 percent or 89 million dollars of manufacturing income growth in non-adjacent regions.

Thus, one can generalize that the impact of competitive influences or programs emphasizing rural industrialization in determining the level of

TABLE 4: Shift-Share Analysis of Personal Income Change in Non-Metro Regions Adjacent to Metro Regions in Illinois, 1962-1972  
(thousands of dollars)

Source of Income	Income Change 62-72	Components of Income Change			Net Shift
		State Growth	Component Mix	Regional Share	
Total labor and proprietors income by place of work	1,966,576	2,072,721	-136,262	30,117	-106,145
By industry					
Farm	166,768	372,576	-188,549	-17,259	-205,808
Nonfarm	1,799,809	1,700,135	-84,623	184,297	99,674
Private					
Manufacturing	719,788	607,128	-122,381	235,041	112,660
Mining	2,297	39,790	-18,149	-19,344	-37,493
Contract construction	95,363	109,951	5,767	-20,355	-14,588
Wholesale, retail trade	221,863	328,877	-45,642	-61,372	-107,014
Finance, insurance, real estate	57,195	49,741	201	7,253	7,454
Trans., comm., public utilities	100,419	137,528	-12,868	-24,241	-37,109
Services	210,232	186,037	16,125	8,070	24,195
Other industries	7,096	6,699	-1,282	1,679	397
Government					
Federal, civilian	22,017	28,428	91	-6,502	-6,411
Federal, military	5,973	8,196	-1,565	-658	-2,223
State and local	314,309	175,165	121,945	17,199	139,144
Less personal contributions for social insurance	115,326	53,096	55,309	6,921	62,230
Resident adjustment	182,756	134,756	-565,474	613,474	48,000
Property income	545,502	374,320	57,396	113,786	171,182
Transfer payments	394,640	230,068	199,799	-35,227	164,572
Total personal income	2,974,148	2,756,769	-499,850	715,229	215,379

Source: U.S. Department of Commerce, Unpublished Data on Personal Income [4, 5]

TABLE 5: Shift-Share Analysis of Personal Income Change in Non-Metro Regions That Are Not Adjacent to Metro Regions in Illinois, 1962-1972 (thousands of dollars)

Source of Income	Income Change 62-72	Components of Income Change			Net Shift
		State Growth	Component Mix	Regional Share	
Total labor and proprietors income by place of work	1,252,577	1,220,508	-80,237	112,306	32,069
By industry					
Farm	207,857	238,310	-120,601	90,148	-30,453
Nonfarm	1,034,811	982,198	-48,888	101,501	52,613
Private					
Manufacturing	290,368	201,500	-40,617	129,485	88,868
Mining	69,637	57,330	-26,150	38,457	12,307
Contract construction	46,599	68,198	3,577	-25,176	-21,599
Wholesale, retail trade	127,480	223,090	-30,961	-64,649	-95,610
Finance, insurance, real estate	41,384	26,196	106	15,082	15,188
Trans., comm., public utilities	37,456	102,149	-9,557	-55,136	-64,693
Services	71,416	119,411	10,350	-58,345	-47,995
Other industries	6,106	5,521	-1,056	1,641	585
Government					
Federal, civilian	19,732	26,810	85	-7,163	-7,078
Federal, military	4,726	6,459	-1,233	-500	-1,733
State and local	241,696	125,806	87,583	28,307	115,890
Less personal contributions for social insurance	66,620	32,152	33,942	526	34,468
Resident adjustment	52,624	40,771	-171,087	182,940	11,853
Property income	310,594	19,871	33,714	57,009	90,723
Transfer payments	293,956	192,761	167,400	-66,205	101,195
Total personal income	1,843,131	1,641,759	-84,152	285,524	201,372

Source: U.S. Department of Commerce, Unpublished Data on Personal Income [4, 5]

manufacturing income increase have been most important in the rural areas. The most rural areas (those at least one county removed from an SMSA), had the largest competitive gain in manufacturing income of the three regions we have differentiated.

#### Shift-Share Results for Employment

Table 6 shows the results for employment in metro regions of Illinois where there is a negative overall net shift. The major negative net shifts occurred in two areas: manufacturing and transportation. Transportation is, of course, closely related to manufacturing. While a major share of the decline in manufacturing is due to the negative industry-mix aspect of manufacturing, there also is a negative regional share for manufacturing. All subcategories of manufacturing had negative industry shares and all but one category (lumber and wood products) had negative regional shares. Finance, insurance, real estate, and banking as well as other services all had negative regional shares.

Table 7 shows the shift-share results for the non-metro region which is adjacent to the metro region. There is a positive overall net shift. Here we feel it quite significant that while there is negative shift for industry-mix in manufacturing and transportation, there is a positive regional share shift in both. There are only a few negative regional shares, and only one of these is of large magnitude, that is, the food and kindred products subclass of manufacturing. In total employment we feel it is significant to note that there is a large positive net shift for this region and all of the net shift comes from the regional share. In fact the regional share is great enough to offset a small overall negative industry mix component.

Table 8 shows the shift-share employment results for the non-metro regions that are not adjacent to metro regions in Illinois. This is the area that we feel is strictly rural. As in the previous region (non-metro adjacent to metro), the net shift for total employment is positive and practically all of this shift is due to the positive regional share. Again manufacturing has a strong positive net shift even though manufacturing has a negative industry mix. This points out the strong positive regional share for manufacturing in rural areas. Only a few items have a negative regional share. The major three categories having a negative regional share are food and kindred products, transportation, and other public utilities and wholesale trade. The only surprising one of these is the food and kindred products category where we would expect rural areas to have a comparative advantage. Evidently other economic factors such as the gathering of inputs or being close to the final market outweigh the comparative advantage we would expect for rural areas.

While we have not tried to mathematically correlate the income and employment shift-share results with each other due partly to differences in some categories and definitions, it is clear the results reinforce each other and the major conclusions drawn from the shift-share analysis.

TABLE 6: Shift-Share Analysis of FICA Employment Change in Metro Regions of Illinois 1962-1972

Source of Employment	Employment Change 62-72	Components of Employment Change			Net Shift
		State Growth	Industry Mix	Regional Share	
Agricultural services, forestry, fisheries	1,973	644	885	444	1,329
Mining	-1,382	1,591	-2,174	-799	-2,973
Contract construction	34,443	24,772	6,305	3,366	9,671
Special trade	22,661	15,677	6,132	912	7,044
Manufacturing	64,035	245,164	-153,574	-27,555	-181,129
Food and kindred products	-4,766	24,177	-27,190	-1,753	-28,943
Lumber and wood products	2,355	1,425	-178	1,108	930
Paper and allied products	2,871	7,236	-3,408	-957	-4,365
Printing and publishing	4,713	20,665	-12,918	-3,034	-15,952
Fabricated metal products	5,883	27,127	-18,837	-2,407	-21,244
Machinery, except electrical	6,675	32,526	-21,501	-4,350	-25,851
Transportation and other public utilities	29,850	41,604	-14,982	3,228	-11,754
Trucking and warehousing	7,560	13,011	-6,588	1,137	-5,451
Communication	3,016	8,781	-2,352	-3,413	-5,765
Wholesale trade	45,083	48,786	-9,123	5,420	-3,703
Retail trade	161,489	99,200	63,528	-1,239	62,289
Finance, insurance, real estate	44,621	41,273	5,557	-2,209	3,348
Banking	17,446	8,670	9,235	-459	8,776
Services	179,910	90,998	101,507	-12,595	88,912
Personal services	-4,146	11,717	-14,448	-1,415	-15,863
Medical and health services	69,017	19,688	50,966	-1,637	49,329
Total FICA Employment	560,022	594,032	-2,071	-31,939	-34,010

Source: U.S. Bureau of the Census, County Business Patterns, 1963 and 1973. [17, 18]

TABLE 7: Shift-Share Analysis of FICA Employment Change in Non-Metro Regions That Are Adjacent to Metro Regions of Illinois, 1962-1972

Source of Employment	Employment Change 62-72	Components of Employment Change			
		State Growth	Industry Mix	Regional Share	Net Shift
Agricultural services, forestry, fisheries	41	166	228	-353	-125
Mining	78	795	-1,087	370	-717
Contract construction	4,920	1,897	483	2,540	3,023
Special trade	1,671	903	355	413	768
Manufacturing	26,403	23,650	-14,815	17,568	2,753
Food and kindred products	-2,262	1,876	-2,110	-2,028	-4,138
Lumber and wood products	-109	56	-7	-158	-165
Paper and allied products	931	80	-38	889	851
Printing and publishing	63	1,258	-787	-408	-1,195
Fabricated metal products	2,814	1,442	-1,001	2,373	1,372
Machinery, except electrical	3,049	883	-584	2,750	2,166
Transportation and other public utilities	2,829	3,052	-1,099	876	-223
Trucking and warehousing	37	1,175	-595	-543	-1,138
Communication	261	467	-125	-81	-206
Wholesale trade	3,533	2,673	-500	1,360	860
Retail trade	18,751	11,119	7,121	511	7,632
Finance, insurance, real estate	3,995	1,970	265	1,760	2,025
Banking	2,026	586	624	816	1,440
Services	20,605	6,247	6,968	7,390	14,358
Personal services	573	790	-974	757	-217
Medical and health services	9,848	2,468	6,388	992	7,380
Total FICA Employment	81,155	51,569	-2,436	32,022	29,586

Source: U.S. Bureau of the Census, County Business Patterns, 1963 and 1973. [17, 18]

TABLE 8: Shift-Share Analysis of FICA Employment Change in Non-Metro Regions That Are Not Adjacent to Metro Regions in Illinois, 1962-1972

Source of Employment	Employment Change 62-72	Components of Employment Change			Net Shift
		State Growth	Industry Mix	Regional Share	
Agricultural services, forestry, fisheries	122	83	114	-75	39
Mining	739	1,541	-2,105	1,303	-802
Contract construction	2,589	1,292	329	968	1,297
Special trade	1,345	520	204	621	825
Manufacturing	13,878	9,065	-5,678	10,491	4,813
Food and kindred products	-1,726	1,028	-1,156	-1,598	-2,754
Lumber and wood products	-167	103	-13	-257	-270
Paper and allied products	51	133	-62	-20	-82
Printing and publishing	4,234	146	-92	4,180	4,088
Fabricated metal products	-474	153	-106	-521	627
Machinery, except electrical	1,533	687	-454	1,300	846
Transportation and other public utilities	226	2,409	-867	-1,316	-2,183
Trucking and warehousing	-365	613	-310	-668	-978
Communication	-111	163	-44	-230	-274
Wholesale trade	461	1,984	-371	-1,152	-1,523
Retail trade	12,637	7,477	4,788	372	5,160
Finance, insurance, real estate	2,499	1,229	165	1,105	1,270
Banking	1,443	168	179	1,096	1,275
Services	12,567	3,769	4,204	4,594	8,798
Personal services	232	471	-580	341	-239
Medical and health services	5,254	1,367	3,538	349	3,887
Total FICA Employment	45,718	28,849	579	16,290	16,869

Source: U.S. Bureau of the Census, County Business Patterns, 1963 and 1973. [17, 18]



Summary

Local rural leaders and development corporations in small towns have been actively seeking industrial development in their communities. A number of government programs have developed which have both directly and indirectly fostered or had as their goals rural industrialization. There have been a number of studies which have tried to measure the impact of rural industrialization. Most of these studies have been aimed at measuring the results of industrialization in local communities where the geographic area of concern is often no greater than one county. However, no aggregate analysis on these effects for the state have been conducted, therefore we subdivided the state of Illinois into three regions--one was all SMSA counties which we refer to as metro areas, the second and third are rural or non-SMSA counties. These rural counties we subdivided into two regions for further analysis--one set was the non-SMSA counties which were geographically adjacent to the SMSA counties and the second set was the counties not adjacent to SMSA counties.

Our shift-share findings do show that greater industrialization both in employment and income change has been occurring in the rural regions because both rural regions have positive regional shares for industry, whereas the metro areas had a negative regional share for industry from 1962 to 1972. This lends evidence that the efforts by local leaders and government programs on rural development are some of the reasons for this change.

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