Economic Changes from Industrial Development in Eastern Oklahoma

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Natural resource based industries provide insufficient opportunities to fully utilize the human and natural resources found in rural areas. Lu *et al.* [19] estimated that only 20 percent of the farm boys graduating from U. S. high schools were able to find adequate opportunities in farming in the decade preceding 1974. Two basic policies can improve earnings and well-being of rural people with limited local job opportunities: bring jobs to the people (industrial development) or bring people to jobs (migration). We discuss briefly the policy of assisting labor mobility before turning to the objective of this study—estimating the net economic impact of bringing jobs to rural communities.

The most massive, albeit unintended, program to alleviate the income and employment deficiencies in rural areas is the exodus of human capital, but there are some limitations. Alonso [1], Crowley [8], and Morris [21] emphasize the externalities, social costs and diseconomies of large city size. A second limitation of migration as a complete rural development program is its selectivity. Beale [2], Hathaway [13], and Tarver [31] document that the more vigorous, educated and younger population (the people a rural area can least afford to lose) have the highest incidence of out-migration. This selectivity of migration reinforces economic factors depressing the rural community.

Unfortunately, the rural migrant is often ill-prepared for the economic and social problems of urban places [33], and many migrants to the city return home. Smith [28, p. 820] reported that about half of the inmigrants he interviewed in Indianapolis were either hoping to or planning to return home. Hathaway and Perkins [14] found that 9 people returned to the farming sector for every 10 people leaving the farming sec-

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tor. The magnitude of this flow back to rural areas was conspicuous in programs specifically designed to assist labor mobility.

The U. S. Department of Labor, under the 1963 amendment to the Manpower Development and Training Act, conducted experiments to assist the relocation of unemployed workers from rural areas. The workers were recipients of financial relocation assistance, grants or loans, and some received counseling to help adjust to their new urban environment. The relocatees were assured of jobs before they moved, providing a degree of security the typical rural-urban migrant does not have. Despite these programs aimed at helping the migrant, a high proportion of the relocatees returned home within a short period of time. Schnitzer [26] reported that, in less than one year, 29 and 48 percent of the relocatees in two West Virginia labor mobility projects returned home; and 22 and 47 percent of the relocatees in two separate North Carolina projects returned home. Somers [29] reported that 24 percent of the relocatees in a Michigan and Wisconsin labor mobility project returned home within a year.

Those returning to economically depressed areas are unlikely to find remunerative jobs even though they may possess new skills and underemployment rates are high. Many underemployed rural people cannot be induced to go elsewhere for employment, and out-migration (even subsidized labor migration) alone is inadequate for the migrant, for the community he leaves, and for the community where he moves. This does not mean that migration should cease or be de-emphasized. It does mean that other methods are needed to create employment and income opportunities for rural residents who cannot be moved or who return home after an unsuccessful stay elsewhere.

The second major alternative for raising rural earnings is to bring jobs within reach of rural people. The President's Task Force on Rural Development notes the crucial importance of industrialization in rural development:

> Job creation is at the heart of rural development . . . The Task Force recommends that the Nation's industries launch a campaign to establish jobs and new plant locations in countryside America. [23, pp. 20-21]

The number of firms, communities, and dollars involved in industrial development programs is evidence that rural communities are turning to non-agriculturally related employment opportunities to promote and maintain growth [30].

Previous research measuring the direct subsidy costs, income generated, or the tax revenue stemming from new industry in rural areas lays a foundation for this study. Moes [20], Rinehart [24], and Saltzman [25] examined private income and employment changes caused by subsidized

location of a new plant.[1] Moes [20] reported an average annual rate of return of 500 percent from subsidies to 130 industrial firms in Wisconsin, 800 percent for the Mississippi Balance Agriculture with Industry program (BAWI), and 900 percent for an Illinois industrial subsidization experience. Rinehart [24] measured the impact of 22 firms on 10 communities under three assumptions about the duration of the income stream from the new plant and the amount of subsidy paid.

In Case I, assuming a perpetual income stream and the firm receiving the capitalized value of all promised subsidies, the rate of return averaged 1,140 percent. The rate of return averaged 607 percent in Case II when the income stream was assumed to cease after a limited time and the firm received only a pro rata portion of the promised subsidy. Case III assumed that the firm failed after a limited number of years, but that firm still received the full capitalized value of the subsidy. The Case III annual rate of return averaged 119 percent. The benefit-cost ratio in Saltzman's [25] study of industrialization in 18 Oklahoma communities averaged 24 to 1.

The above studies recorded substantial income gains from successful industrialization, but other studies report cases of communities investing time and money in a new industry only to have the plant move on or fail financially. Crecink [7] examined a Mississippi firm that failed after four years of operation despite financial assistance from the Area Redevelopment Administration, Small Business Administration, and state and local government. The suggested reason for failure was an inadequate market, labor supply and supporting business services—subsidization alone was inadequate for business viability.

Wadsworth and Conrad [34] showed that estimates of community benefits based on plant payroll alone are exaggerated. While the payroll from a new plant in a rural Indiana community was substantial, up to 33 percent of the payroll was used to pay off old debts, increase savings, or purchase goods from elsewhere, and therefore was not new income in the community.

Previous studies also examined the effect of new industry on the revenues and expenditures of municipal and county governments and school districts. Lowenstein [18] reported municipal revenue-expenditure ratios ranging from 3:1 to 5:1 caused by industrial development. Garrison's [11] study of five Kentucky counties indicated that the effect of new industry on local government revenues and expenditures was sensitive to additional demands for services, tax concessions, and the unit of government involved and was negative in some situations.

These previous studies do not include comprehensive estimates of costs, benefits, or net benefits of industry to communities and hence give only limited guidance to communities deciding whether to subsidize in-

dustrial expansion.[2] Net benefits of industrial expansion will be estimated in this study. Economic changes in the community resulting from industrial expansion will be examined under various assumptions about the refilling of previous jobs and the occurrence of local secondary effects. Tests will be made to isolate systematic association between economic impact and various plant and community characteristics. The spillover of economic impact out of the community into the surrounding county will be examined along with variations in impact from alternative forms of industrial expansion. National implications of rural industrial development will be examined briefly. Before turning to these issues, we describe the data and model.

The Study Area and Data

The Eastern Oklahoma Development District located in the low income Ozarks region of eastern Oklahoma was chosen as the study area.

Five communities in four counties were selected for this study because they each had at least one plant, employing ten or more workers, located or enlarged between 1960 and 1969. The 1970 population in the five communities ranged from 2,063 to 37,331 (see Table 1). From 38 to 100 percent of the 1960 population in the counties lived in rural residences. Per capita income was low in the counties, ranking 27th, 71st, 76th, and 77th in 1960 among the 77 Oklahoma counties. Information collected from interviews with plant managers, public officials, and workers at the plants as well as secondary data sources helped to identify those changes resulting from industrial expansion.

Six of the twelve plants studied are new industries in the area and the remaining plants experienced a major enlargement (10 or more new employees) during the sixties. The first row of Table 1 gives the four-digit standard industrial classification (SIC) code of the 12 plants. The plants produce a wide variety of goods ranging from fabricated steel goods, furniture, canned vegetables, and ventilation equipment to electronic relays.

The plants in the sample are the small to medium size plants that are typically the most feasible target for rural industrial development efforts [35]. The value of shipments (sales) from the plants ranges from $118,000 to $2.2 million with an average of $758,333 per plant in 1970. Annual sales at six of the plants are less than $500,000, while sales at four plants are at least $1 million. The wage scales at the plants tend to be below the national average for their respective SIC category. The average wage ranges from $3,112 to $7,108 per year. Four plants pay less than $4,000 per year, while three plants pay an average wage of $5,500 or greater. The annual employment at the plants varies from 10 to 108 em-

Table 1. Selected Industry and Community Characteristics (In 1967 Dollars)

	Plant Identification											
	A	B	C	D[1]	E[1]	F[2]	G[2]	H[2]	I[2]	J[2]	K[2]	L[2]
Industry Characteristics												
Standard Industrial Classification	3,679	2,531	2,086	2,511	2,512	2,033	723	2,531	2,034	3,433	3,441	3,561
Value of Shipments 1970 ($000)	287	118	618	430	212	1,505	1,118	430	810	1,032	318	2,222
Annual Payroll per worker - 1970 ($)	3,112	4,502	4,338	4,099	4,690	4,299	3,697	3,439	3,943	6,986	7,108	5,707
Annual Employment-1970	80	10	45	30	11	50	20	25	108	80	15	80
Investment ($000)[3]	263	4	N.A.	26	29	172	46	125	N.A.	632	126	3,654
Expanded (E) or New (N) Plant	N	E	E	N	E	E	N	N	E	N	E	N
Community Characteristics												
1960 Population	1,916	5,480	1,887	3,351	3,351	38,059	38,059	38,059	38,059	38,059	38,059	38,059
1970 Population	2,134	9,254	2,063	4,880	4,880	37,331	37,331	37,331	37,331	37,331	37,331	37,331

Source: [27]
[1]Plants D & E located in the same community
[2]Plants F through L located in the same community.
[3]The industries did not report the value of rented land, buildings or equipment.

ployees with an average of 46 workers per plant. Data on investment is incomplete because the plant managers did not report the value of rented land or buildings. Attempts to seek this information from other sources (assessors and landlords) were unsuccessful. On-site observation indicates that plant L with a $3.7 million investment was the upper limit of plant investment in the area.

Thirty percent of the 554 workers employed by the plants completed and returned a mail-in questionnaire asking about various socio-economic characteristics (see Table 2).[3] Based on results from the returned questionnaire, 69 percent of the workers lived in the same community where the plant was located, while 11 percent commuted to work from another county. Twelve percent of the workforce moved into the communities because of the new job opportunities. Eight percent of the workers were previously unemployed, indicating that rural industrialization has some direct impact on unemployment in rural areas. Almost one in every five previous jobs were not refilled, a finding not unexpected in view of the 1960 estimate that underemployment in the area was 20 percent. Approximately 17 percent of the workforce would have commuted or moved to other communities to seek work if the present job opportunity had not occurred. The workers experienced an average increase in their income

Table 2. Selected Social-Economic Characteristics of Labor Force*

	(Percent of Plant Workers)
Workers' Place of Residence	
Same community as plant	69.2
Same county as plant, but outside community	20.3
Outside county plant located in	10.5
Workers moving to this community because of job	11.8
Previous Employment Status	
Unemployed	7.7
Employed in same community	52.6
Workers' previous jobs not refilled	19.3
Previous Employment Opportunities if plant had not expanded	
Would have kept previous job	82.7
Would have commuted to other areas	10.2
Would have migrated to other areas	6.3
Geographic Spending Patterns	
Spending in same community as plant	60.5
Spending in same county, but outside community	4.5
Spending outside county**	35.0
	(1967 Dollars Per Plant Worker)
Income	
Previous job	$3,685
Present job	$4,253
1970 Family	$5,711

*Source [27]
**Includes taxes to nonlocal government

of $568 by accepting the new industrial jobs. The workers spent an average of 61 percent of their total income in the same community as the plant. Thirty-five percent of the workers' total income was spent outside the county.

The Model

The following model can assist local officials in estimating the economic impact of industrial expansion on the community, where the community is defined by its municipal boundaries. The impact of the plant is confined to that occurring within the community rather than some larger political subdivision, such as the county. The model is summarized in Appendix Tables I-IV.

To measure industrial impact, the community is divided into three sectors: private, municipal government, and school district. An account for each sector includes the benefits and costs of industrial expansion. The private sector account measures the primary income changes of the plant's workforce plus the secondary income change accruing to local businesses and households.[4] Plant payroll is an inflated estimate of the actual income changes occurring locally. Plant payroll is adjusted (internalized) to include only that portion spent in the community [10, 32]. The model deducts three sources of community income leakages from plant payroll: import purchases, in-commuters, and income and social security taxes.

The labor questionnaire asks the workers the percent of their income spent in the community where the plant is located (import purchases), their place of residence (in-commuters), and family size (number of income tax dependents).[5] The spending by the workers at the plants is composed of local and nonlocal spending. The percent of income spent in the community is used to compute the proportion of plant payroll spent outside the community by workers residing in the community. The proportion of workers living outside the community is used to estimate the plant payroll removed from the community by residents from other locales (in-commuters). The local spending by nonresident workers is estimated by the percent of their income spent in the community. The family size is used to compute state and federal income taxes which do not contribute directly to the local economy.

It is assumed that the workers file joint returns, if married, and take the standard deduction. Internalized income is computed by deducting from the plant payroll the income spent elsewhere, both import purchases and nonlocal taxes, by the workers living in the community and adding the local spending by in-commuters. The result is plant payroll spent in the community.

The private sector account also includes the private costs, real and opportunity, of industrial development. The real costs in the private sector include the obvious costs of donated land and buildings, plus travel and other operating costs of the industrial development committee. The opportunity costs in the private sector are measured by the income foregone in the community when a local job is not refilled after the worker transfers to a job at the plant. Moes [20, pp. 213-232] states that the worker transferring to a new job at the plant experiences an opportunity cost equal to the foregone wages from his previous job. But Moes fails to extend his reasoning to the community, which will not lose income if the previous job is refilled. Replies by the workers to questions asking if their previous job was refilled and their previous wage rates are used to estimate the private sector opportunity cost.[6] The private sector account is summarized in Appendix Table I.

A "from-to" model is used to estimate the multipliers measuring the secondary effects in the private sector. These secondary effects are changes in income of local businesses and households with no wage earner at the plant. The from-to model is similar to the input-output model but utilizes trading relationships rather than technical relationships in the transactions table. The transactions table used in this study is an adjusted version of the transactions table built by Muncrief [22] for another multicounty area in Oklahoma. The counties in both areas are agriculturally oriented, have similar populations, and the manufacturing sectors are export-oriented.

Four criteria are used to correlate the counties in the two areas. The criteria in order of importance are (1) composition of the export sector, (2) size of community or trade area, (3) distance to nearest alternative trade center or labor pool, and (4) county population. Muncrief's study generates county multipliers, i.e. secondary effects within the total county. To estimate the community income multipliers, the county multipliers are weighted by the percent of the workers income spent in the community (propensity to consume locally). The community income multipliers measuring only the secondary effects in the community are used to estimate both the secondary *benefits* and *costs* in the private sector. The county multipliers and propensity to consume locally are presented in Appendix Tables V and VI.

The analysis of industrial impact on the public sector (municipal government and school district) builds upon previous research by Hirsch [15, 16]. Hirsch's "net fiscal resources" model incorporates the primary and secondary changes in public revenues and expenditures caused by industrial expansion, new residents and their associated school age children.[7]

The account for the municipal government sector measures the

changes in municipal revenues and expenditures caused by the industrial expansion, new residents, and increased economic activity in the community. The primary revenues for municipal government are property taxes, sales taxes, and municipal utility revenues generated by the plant and new residents.

Property tax revenue benefits for both the municipal government and schools accrued only from new investment in housing, new industrial equipment and buildings. The use of existing but vacant housing, industrial buildings, or lots whose value is already on the property tax rolls is not a benefit of industrial expansion. The property tax revenues (benefits) are the assessed value of new industrial and residential investment times the municipal government or school district property tax mill rate.

The extension of property tax concessions to a plant in the form of low assessment or outright exemption is foregone property tax revenue and counted in the model as an opportunity cost to the municipal government or school district.

The municipal utility revenues are estimated by the average utility bill per household in the community times the number of new families due to industrial expansion. It is assumed in this analysis that the utility revenues are equal to the cost of delivering those utilities. Annual costs incurred to expand utility facilities are also included as municipal costs.

The additional sales tax revenues are estimated by the product of the municipal sales tax rate, if any, and the net gain in primary income in the private sector. The sales taxes derived from secondary income generated is included as part of the secondary benefits to the municipal government sector.

Primary costs for the municipal government are expenditures for services provided the plant and new residents in the community. Replies by municipal and industrial officials to queries about the plant's new service requirements are used to measure the effect of plant primary expenditure on municipal government. The municipal costs of new residents are estimated by per capita municipal expenditures multiplied by the number of new residents in the community due to industrial expansion. The municipal government account is summarized in Appendix Table II.

The account for the school district measures the changes in school revenues and expenditures caused by new students, new residential and industrial investment and increased economic activity. Primary revenues for the school district include state and federal aid and property tax revenues. The school district property tax revenues are computed in the same manner as municipal government property tax revenues. The school district's state and federal aid per student in average daily attendance (ADA) times the number of new students is used to estimate this portion

of the primary benefits to the school district. The primary expenditure impact in the school district sector is computed by the product of the number of new students and per ADA operating expenditures plus the annual costs of any directly related capital expansion. The school district account is summarized in Appendix Table III.

Local economic development results in direct, indirect, and income induced tax contributions as well as service requirements [15, pp. 120-121]. Municipal government and school district finances per dollar of personal income are multiplied by the amount of secondary income in the private sector to estimate secondary public sector effects. Secondary income is used because the impact of new residents is already included in the primary effects.

The primary and secondary benefits (costs) in each sector are summed. The difference between benefits and costs is the net gains from industrialization to that sector. The net gains for each sector are summed to estimate the community net gains, which are the economic changes in the community resulting from industrial expansion (see Appendix Table IV). It should be emphasized that the net gains are not an indication of industry profits.

The Net Economic Impact

Initially the analysis will examine industrial impact from the community and do not reflect the economic consequences on the county or the nation from industrial expansion. These effects will be examined in later sections. After discussing the net gains under various assumptions, the net gains will be related to various plant and community characteristics. The reported results of industrial impact do not include the income generated during the construction phase.

The analysis of industrial impact is presented as three cases, each representing different assumptions about the occurrence of secondary effects and the refilling of previous jobs. Case I assumes that no secondary effects occur within the local area. This condition could exist if the plant workforce did not spend any income locally. Case I assumes that some of the previous jobs are refilled. Case II represents the situation where some previous jobs are refilled and some secondary effects occur in the local area. Case III assumes that all previous jobs are refilled and secondary effects are present in the local area. The Case II assumptions are the most realistic, while the Case III assumptions depict conditions similar to most previous studies of industrial impact except for the adjustments to consider only local consumption. Case II will be discussed initially and Cases I and III will only be mentioned to indicate the sensitivity of the results to the assumptions. Unless otherwise noted, the estimates of in-

dustrial benefits, costs and net gains are average annual impact in constant 1967 dollars.

In Case II the community net gains range from a low of $37,739 to a high of $357,532 and average $153,908 per plant (see Table 3). This is the additional income and tax revenue that accrues to the community and its residents in excess of the additional real and opportunity costs resulting from industrial expansion. The private sector net gains (plant payroll remaining in the community and respent by local merchants and households) range from $37,472 to $352,016 and average $152,982 per plant. The loss of community income from unrefilled previous jobs, private opportunity costs, averages $11,072 per plant. The unrefilled previous jobs create a negative multiplier effect on community income. The average loss of secondary income is $7,096 per plant. The opportunity cost is zero for the plants where all of the workers' previous local jobs are refilled.

The magnitude of the public sector net gains are much smaller than the private sector net gains. The public sector net gains (if positive) represent the potential tax reduction to community residents or tax dividend to improve community services. Negative public sector net gains represent reduced services or additional taxes local residents must pay to maintain preindustrialization service levels assuming constant quality and prices. The municipal government net gains range from a loss of $2,521 to a gain of $3,246 and average only $525 per plant. The net fiscal impact on the school district averages only $401 per plant and ranges from a negative $815 to a positive $2,617.

The net impact of six of the twelve plants on either the municipal government or school district sector is negative. The municipal government fiscal net loss for three plants averages $989 per plant and the net gain for five other plants is less than $500 per plant and the net gain for six other plants is less than $500 per plant. The combined fiscal impact on the municipal government and school district sectors is negative only for Plant F. That plant was assisted by municipal bonds.

Hirsch [16] showed that industrial expansion significantly influenced public schools through intergovernmental aid. This fiscal aspect was examined in this study by deducting all state and federal aids from the public sector benefits. Without state assistance (shared taxes), an additional four plants had a negative fiscal impact on the municipal government. Without state and federal assistance, all but four plants had a negative fiscal impact on the school districts.

We now examine the sensitivity of the results to the assumptions about the refilling of previous jobs and occurrence of secondary effects in the local area.

In Case I the exclusion of local secondary effects proportionately

Table 3. Annual Impact of Industrial Expansion on Rural Communities: Case II (In 1967 Dollars)

	Plant Identification											
	A	B *	C *	D *	E *	F	G	H	I	J	K	L
Private Sector												
Primary Benefits	132,550	22,304	108,099	40,679	32,146	122,216	50,492	38,529	222,986	193,684	56,033	230,137
Secondary Benefits	75,142	15,168	60,638	31,204	24,659	80,954	32,912	25,117	145,359	126,253	36,523	150,008
Total Benefits	207,692	37,472	168,737	71,883	56,805	203,170	83,404	63,646	368,345	319,937	92,556	380,145
Primary Costs	9,215	0	0	0	0	11,883	14,707	4,561	31,525	39,637	4,303	17,029
Secondary Costs	4,282	0	0	0	0	7,871	9,651	2,973	20,549	25,836	2,892	11,100
Total Costs	13,497	0	0	0	0	19,754	24,358	7,534	52,074	65,473	7,195	28,129
Net Gain	194,195	37,472	168,737	71,883	56,805	183,416	59,046	56,112	316,271	254,464	85,361	352,016
Municipal Government Sector												
Primary Benefits	5,800	250	1,778	3,747	2,339	19,973	9,636	4,008	3,726	20,056	6,761	20,136
Secondary Benefits	1,342	,211	30	568	449	1,219	671	1,183	2,399	2,038	592	4,069
Total Benefits	7,142	461	1,808	4,315	2,788	21,264	10,307	5,191	6,125	22,094	7,353	24,205
Primary Costs	6,139	59	1,045	3,764	2,016	22,824	9,398	3,832	2,171	19,145	6,704	18,004
Secondary Costs	1,448	211	29	553	437	961	488	871	1,770	1,483	441	2,955
Total Costs	7,587	270	1,074	4,317	2,453	23,785	9,886	4,703	3,941	20,628	7,145	20,959
Net Gain	—445	191	734	—2	335	—2,521	421	488	2,184	1,466	208	3,246
School District Sector												
Primary Benefits	2,557	47	561	1,119	71	6,262	104	1,888	2,752	4,239	1,223	5,259
Secondary Benefits	2,707	618	167	821	649	1,951	1,026	592	3,258	3,118	896	6,424
Total Benefits	5,264	665	728	1,940	720	8,213	1,130	2,480	6,010	7,357	2,1[illegible]9	11,683
Primary Costs	0	0	405	879	0	6,039	513	2,248	3,106	3,677	1,099	3,053
Secondary Costs	2,647	589	164	799	632	2,002	1,008	580	3,719	3,062	919	6,360
Total Costs	2,647	589	569	1,678	632	8,041	1,521	2,828	6,825	6,739	2,018	9,413
Net Gain	2,617	76	159	262	88	172	—391	—348	—815	618	101	2,270
Community Net Gain	196,367	37,739	169,630	72,143	57,228	181,067	59,076	56,252	317,640	256,5[illegible]8	85,670	357,532

Source: [27]
*The workers at plants B,C,D, and E reported that all of their previous jobs were refilled

reduces community benefits and costs (see Appendix Table VII). The annual net gains in the private sector average $93,083 per plant. The municipal government sector net gains average $259 per plant per year and the annual net gains for the school districts average $422 per plant. The community net gains average $93,764 per plant per year, about $60,000 less than in Case II.

The assumptions of Case III, where all previous jobs are refilled, result in the largest estimates of industrial impact on the communities (see Appendix Table VIII). The annual net gains in the private sector average $168,809 per plant. The municipal government sector net gains average $630 per plant per year, while the school sector net gains average $401 per plant per year. The reason for the slight decline in school district impact between Case I and II is due to the influence of the secondary fiscal impacts. The community net gains average $169,840 per plant per year or about $15,000 per year more than in Case II.

Generalization of Net Gains

From the preceding discussion, it is apparent that industrial expansion yielded a substantial positive net economic gain to the communities. The next question becomes what are the community and plant characteristics that influence the size of the net gains? While individual communities should complete the detailed analysis to estimate community net gains, state and national policy makers would prefer criteria to predict net gains as a function of various plant and community characteristics to aid in selecting industries and communities for accelerated industrial development.

The characteristics should be readily obtainable to facilitate the selection process. The characteristics selected here are plant employment, plant payroll, plant sales, and community population. The ratio of community net gains to each of these factors provides a first approximation for predicting community net gains (see Table 4). The annual net gains per dollar of payroll average $.71, annual net gains per employee average $3,334, annual net gains per dollar of plant sales average $.20, while annual net gains per person in the community average $6.49. The community net gains per dollar of payroll minimizes the relative variation about the mean, as apparent in the coefficient of variation, for the characteristics selected. This is logical since private sector net gains, essentially plant payroll spent locally dominate community net gains. The largest relative variation about the mean is found with net gains per person in the community.

Some insight into the relationship of plant characteristics to commu-

nity net gains can be made from the information in Tables 1, 3, and 4. Plant L had the largest volume of sales and community net gains but ranked ninth in community net gains per dollar of sales. Plant B's sales and community net gains were the smallest, but community net gains per dollar of sales ranked third. The simple correlation coefficient between sales and community net gains was +.68. Plants B and L had the same relative ranks in terms of payroll and community net gains. The simple correlation coefficient between payroll and community net gains was +.93. Plant B had the smallest employment and community net gains, but the community net gains per employee ranked fourth. Plant I had the largest workforce and the second largest community net gains, but the community net gains for Plant I ranked ninth.

The simple correlation coefficient between community net gains and employment was +.93. Seven of the plants located in a community of 37,000 people and the average community net gains per plant were $187,684. The largest community had the only two plants (I and L) with community net gains exceeding $300,000 per year, but Plant B had the smallest community net gains and was located in the second largest community. The simple correlation coefficient between community population and community net gains was +.34.

Table 4. Community Net Gains Per Selected Community and Plant Characteristics (Dollars) (In 1967 Dollars)

Plant Identification	Characteristics			
	Per Dollar of Payroll	Per Employee	Per Dollar of Sales	Per Community Population
A	.79	2455	.68	63.10
B	.84	3774	.32	5.00
C	.87	3770	.27	85.89
D	.59	2405	.17	14.78
E	1.10	5203	.27	11.73
F	.84	3621	.12	4.80
G	.80	2954	.05	1.58
H	.65	2250	.13	1.51
I	.75	2941	.39	8.51
J	.46	3207	.25	6.87
K	.80	5711	.27	2.27
L	.78	4469	.16	9.48
Weighted Average	.71	3334	.20	6.49
Coefficient of Variation[1]	22.14	33.10	81.23	418.33

Source: Tables 1 and 2

[1]Coefficient of variation $= \frac{\text{Standard deviation}}{\text{mean}} \times 100\%$

Multiple regression analysis is used to further generalize the model and refine the method of predicting community net gains. Various factors are selected as feasible determinants of community net gains. Intuitively, employment and wages should be major contributors to the industry's impact on the community. The community net gains should be directly related to the number of workers hired. The wage rate (annual wage) paid by the industry translates the employment gains into changes in family income and local spending.

The community population per employee at the plant adjusts for the potential differences in the community's ability to provide local labor. Larger community net gains are expected with greater community population per employee due to the potentially larger labor pool. Some concern is expressed in the literature that the sex ratio in the plant's workforce can influence the plant's impact on rural families and communities. Since males are traditionally paid a higher wage, the percent of males in the plant's workforce is expected to have a positive influence on community net gains. Equipment investment per worker should exert a positive influence on wage scales, property taxes, and community net gains.

The results of the regression analysis are presented below:

$$NG = \underset{}{1704.160} - \underset{(13.117)}{14.657E} + \underset{(.254)}{.609W} - \underset{(18.421)}{4.637M} - \underset{(.653)}{.202P} + \underset{(495.455)}{137.778C}$$

$$R^2 = .569$$

$$F = 1.585$$

where

NG = Community net gains per employee
E = Employment at plant
W = Average annual wage
M = Percent males in workforce
P = Community population per employee
C = Plant equipment investment per employee
() = Standard errors of the coefficients

The signs on the coefficients for employment (E), wages (W), and equipment investment per worker (C) are as expected. The signs on the coefficients for percent males in the workforce (M) and community population per worker (P) are not as expected. It is apparent from the large standard errors of the coefficients that the results of the regression analysis are not reliable in predicting the marginal effects of the selected industrial and community characteristics on community net gains per employee. The F ratio for the regression equation indicates that all the independent variables acting together in a linear relationship exercise no statistically significant influence on the dependent variable, community net gains per employee. We stress the lack of statistical significance may

stem from an inadequate number of observations (n = 12) and a limited range of variation in the dependent variables. This issue obviously needs additional study.

The Spillover of the Economic Impact

The measurement of industrial impact in the preceding section is from the community's perspective. Most previous studies of industrial impact use the county as the unit of analysis and plant payroll as the measure of local benefits. If there are only minor differences in the estimates of community and county impact, then the refinements in the estimates of industrial impact may not justify the additional data requirements and costs. Case II is used to measure the differences in county and community impact. Only the private sector effects are examined, because data limitations prevent allocating industrial revenue-expenditure impact to other local governmental jurisdictions.

The industrial payroll averages $216,000 per plant but an average of $102,000 of payroll per plant spills out of the county as non-local taxes and import purchases (plant payroll less county primary income in Table 5). Annually another $10,000 per plant spills over from the community into other parts of the county. The primary and secondary income averages $235,000 annually per plant in the counties and $171,000 annually per plant in the communities after adjusting for non-local taxes and import purchases. The annual opportunity costs in the county from industrial development averages $25,000 per plant including $18,000 of community costs. The spillover of industrialization costs out of the community into the county averages $7,000 per plant. The opportunity costs include an average annual loss of $13,000 of secondary income per plant in the counties and $7,000 per plant in the communities.

The annual net gain of county income averages $210,000 per plant and ranges from $49,000 to $461,000. The annual net gain of community income averages $153,000 per plant and ranges from $37,000 to $352,000. The initial estimate of the annual income impact, $445,000 per plant, includes an income spillover averaging $292,000 per year from the community. This spillover is almost double the community income net gains, highlighting the necessity of measuring only community net gains to avoid overestimating local benefits and overinvestment in the community's industrial development program.

The difference in the estimates are clearer when the annual impact is placed on a per employee basis. The annual plant payroll is $4,679 per employee; by adding the estimate of secondary income effects in the county, the income change averages $9,639 per employee. The gross

Table 5. Annual Spillover of Industrial Payroll[1] (000's of 1967 Dollars)

Plant Payroll	Plant Identification A	B	C	D	E	F	G	H	I	J	K	L	Per Plant Average
Primary	249	45	195	123	52	215	74	86	426	559	107	457	216
Secondary (county)	213	46	210	142	60	232	80	93	460	603	115	493	229
TOTAL	462	91	405	265	112	447	154	179	886	1162	222	950	445
County Net Income Effects (Internalized)													
Benefits													
Primary Income	161	24	135	48	38	126	49	42	230	223	56	241	114
Secondary Income	137	25	146	55	43	136	53	45	248	241	61	258	121
TOTAL	298	49	281	103	81	262	102	87	478	464	117	499	235
Costs													
Primary Costs[2]	11	0	0	0	0	18	10	7	32	44	4	18	12
Secondary Costs[2]	9	0	0	0	0	21	11	7	34	47	5	20	13
TOTAL	20	0	0	0	0	39	21	14	66	91	9	38	25
Net Gains	278	49	281	103	81	223	81	73	412	373	108	461	210
Community Net Income Effects (Internalized)													
Benefits													
Primary Income	133	22	108	41	32	122	50	39	223	194	56	230	104
Secondary Income	75	15	61	31	25	81	33	25	145	126	37	150	67
TOTAL	208	37	169	72	57	203	83	64	368	320	93	380	171
Costs													
Primary Costs[2]	9	0	0	0	0	12	15	5	32	40	4	17	11
Secondary Costs[2]	4	0	0	0	0	8	10	3	21	26	3	11	7
TOTAL	13	0	0	0	0	20	25	8	53	66	7	28	18
Net Gains	195	37	169	72	57	183	58	56	315	254	86	352	153

[1]Source [27]
[2]Figures may not agree with Table 3 because of rounding. Workers at plants B, C, D, and E reported that all of their previous jobs were refilled.

change in county income averages $5,090 per employee and the net change averages $4,549 per employee after adjusting for non-local consumption (import purchases and non-local taxes). The gross change in community income averages $3,704 per employee and the net change averages $3,334 per employee.

The plant payroll plus the estimates of secondary income in the county exceed the net gain in community income by $6,325 per employee. The average net gain in community income is $1,365 per employee less than the average wage paid at the plants. Based on the size of benefits, it is apparent that a county or multicounty development district can afford to compete more aggressively than can communities for industrial development.

New or Enlarged Plants

There are two common routes for communities to achieve industrial development: (1) attraction or creation of a new plant, or (2) enlargement of an existing plant already in the community. The six plants which are new to the area account for 57 percent of the 554 new industrial jobs created by the plants in the sample. The net gains from "new" and "enlarged" plants are compared to determine if the type of industrial development results in a different impact on the community. The annual net gains for Case II are reported per employee to facilitate comparison.

The community net gains average $3,168 for the new plants and $3,552 for the enlarged plants. The difference is largely attributable to differences in private sector net gains. The new plants' private sector net gains average $3,136 versus $3,548 for the enlarged plants. We expected the new plants to have smaller public sector net gains because of the greater outlays for location inducements and greater demands on public services from the new plant, new residents, and new school children. However, the municipal net gains for new plants ($16.43) average almost four times larger than the municipal net gains for enlarged plants ($4.73). The average net gains for school districts are slightly negative (−$.92) for the enlarged plants and distinctly positive ($15.96) for the new plants. All of these changes are too small to justify advantages for one type of job expansion over another.

Capitalized Net Gains

We emphasize that the estimates of community net gains are on an annual basis. Industrial location subsidies can be provided on a one-time basis (donation of site or building) or may be prorated over an extended period (extended tax break). The one-time subsidy may be cal-

culated as the present value of the annual community net gains discounted for the number of years the plant continues local operation. These estimates do not include the transitory income effects during the construction phase which can be sizable.

Table 6 presents the capitalized gains per employee for Case II discounted as six percent. The present value of community net gains per employee average $14,041 if the plant is assumed to operate five years, $24,536 if ten years, and $38,238 if 20 years of operation is assumed. These figures not only suggest the maximum subsidy that a community could pay and just break even given alternative life spans of firms, but also the potential costs to a community from "pre-mature" failure of the plant. The community loss averages $24,197 per employee if the plant receives a subsidy based on an assumed life of 20 years and fails after only five years of operation.

Growth Centers

A perennial issue for national policy is whether investments should be concentrated in growth centers or be allowed to disperse randomly over the countryside. Seven of the plants in this study are located in a community of 37,000 people while the remaining five plants are located in four communities of 2,000 to 10,000 population. If there is a substantial difference in community net gains, it may assist policymakers in guiding the dispersion of industry into rural areas. Community net gains average $3,476 per employee in the "growth center" and $3,031 per employee in the smaller communities. The difference of $446 per employee

Table 6. Present Value of Case II Community Net Gains Per Employee For Selected Earnings Horizons (Discount Rate Is 6 Percent)

Plant Identification	Number of Years in Earnings Horizon				
	Infinity	20	10	5	1
A	$40,911	$28,154	$18,066	$10,337	$2,316
B	62,900	43,287	27,776	15,895	3,560
C	62,827	43,237	27,744	15,876	3,556
D	40,080	27,583	17,699	10,128	2,269
E	86,711	59,673	38,291	21,912	4,908
F	60,357	41,537	26,653	15,252	3,416
G	49,231	33,880	21,740	12,441	2,787
H	37,502	25,808	16,561	9,477	2,123
I	49,019	33,735	21,647	12,387	2,775
J	53,449	36,783	23,602	13,506	3,025
K	95.191	65.509	42,035	24,054	5,388
L	74,487	51,261	32,893	18,823	4,216
Weighted Average	55,563	38,238	24,536	14,041	3,145

Source: Tables 3 and 4. Net benefits in year 1 differ between Table 4 and 6 because the latter are discounted.

is not statistically significant.[8] Other advantages of growth centers including greater opportunities for alternative employment and community services also need to be considered before a final judgment of growth center policy can be made.

National Implications

Although the existence of relatively high levels of underemployed human resources in rural areas is documented, opinions diverge on how best to correct this problem. Should programs be stressed that actively seek to move out human resources or move in man-made capital? It should be emphasized that any national policy would need to combine the complementary aspects of each approach and be flexible to meet unique local conditions.

Economic theory states that resources, in a competitive market, will move to their highest and best use in response to market signals. However, imperfections in both the labor and capital markets may prevent this adjustment. Imperfect knowledge and personal biases may retard movement of capital into depressed rural areas [9]. An industrial development program to encourage the flow of capital to rural areas, by reducing the cost of capital, may reduce the barriers impeding capital flows. Buchanan and Moes [6] contend that geographically standardized wages discriminate against rural laborers whose marginal value product may be less than standardized wage rates.

An industrial development program that reduces labor costs in rural areas to competitive levels should accelerate rural industrial development. Gray [12] contends that under various conditions of wage-immobile labor, subsidized industrial location can approach the competitive market solution of resource allocation. Rural industrialization should improve national income if wage-immobile or underemployed labor is hired. However, Jordan [17] suggests that rural industrialization may reduce geographic wage mobility of labor and possibly reduce national income.

While the purpose of the model developed in this study is to evaluate local, not national, economic impacts of rural industrialization, some crude inferences of national benefits and costs from rural industrialization can be made. From a national perspective, the plant payroll no longer needs to be internalized to reflect only local effects, i.e., the distinction between local and nonlocal spending is no longer relevant. Likewise, secondary impacts are not included because these occur wherever the plant locates, although admittedly some differences exist.

National opportunity costs arise from at least three sources. The first is the loss of income from unrefilled previous jobs. This loss of community income is also a national income loss provided the lost job

was contributing real output equal to the wage. This cost may be similar whether rural people are employed locally or elsewhere, if full employment exists in the city. Generating jobs locally allows farmers to continue farming part time (a gain in national income) but may cut off opportunities for employment of other family members in the metropolis where more jobs exist. The net effect of these secondary impacts is not known and is ignored herein.

The second loss of income arises from differences in costs of providing public services to the worker in either a rural or urban setting. Costs of providing all services including pollution control and protection against crime vary with city size and are lowest for cities of approximately 300,000 [21]. Since we do not know to what size city people will migrate, because costs for small towns and large cities are somewhat comparable, and because costs of services are overshadowed by the third opportunity cost listed below, differences in service uses are omitted.

The third national opportunity cost arises because rural industrialization impedes labor mobility to high-wage areas.[9] The difference in city income for rural migrants and income if jobs are generated locally is meaningful only if the difference reflects real output. This national opportunity cost is measured herein by multiplying the number of potential migrants by adjusted national median per capita income.

The number of potential migrants was determined from a question on the labor questionnaire asking workers if they would have moved to another community to seek employment if the present job had not developed. Only six percent of the workers replied they would have migrated if the present job had not developed (see Table 2).

The 1967 median income for the U. S. is used as the potential income for the migrant. The U. S. median income level is adjusted for the age-sex-education composition of the workforce at each plant. The national average wage for the specific industry group is not used as the potential income because national data to adjust for the age-sex-education composition of the labor force were unavailable and the worker who migrates need not secure employment in the same industry grouping.

Initially, if it is assumed that rural industrialization prevented only the laborers planning to migrate from migrating (6 percent), the national net gains average $198,662 per year for the 12 plants. The national net gains per plant range from $40,737 to $521,166 for this short run situation (Table 7). National income is improved by rural industrialization in this case. When it is assumed that in the long run rural industrialization caused all the workers not to move to other locales where they would have received the adjusted national median income, the national net gains are reduced to an average annual *loss* of $43,300 per plant. Four plants have a positive net gain in this case and the remaining

Table 7. National Impact of Rural Industrialization With Limited Labor Mobility (In 1967 Dollars)

	Plant Identification											
	A	B	C	D	E	F	G	H	I	J	K	L
Benefits												
Plant payroll	248,960	45,021	195,210	122,910	51,590	214,950	73,940	85,975	423,576	558,880	106,635	456,560
Costs (Foregone national average income)												
Short run	21,357	4,284	18,128	7,764	5,010	12,985	8,931	13,191	25,420	37,714	5,791	39,691
Long run	331,120	65,900	281,295	120,060	77,616	201,000	138,460	204,805	393,876	584,720	89,550	615,390
National Net Gain												
Short run	227,603	40,737	177,082	115,146	46,580	201,965	65,009	72,784	398,156	521,166	100,844	416,869
Long run	—82,160	—20,879	—86,085	2,850	—26,026	13,950	—64,520	—118,850	29,700	—25,840	17,085	—158,830

Source: [27]

8 plants have a negative impact on national income ranging up to $158,-830 per year.

For national income to be higher without the rural industrialization, 4 out of 5 of the plant workers would have needed to migrate to higher-paying employment. Since this degree of required migration seems unlikely in any realistic time period, rural industrialization is judged to add to national income (output) based on results of this study.

Summary and Conclusions

The five communities in this study experienced substantial net economic gains from the 12 new or enlarging plants that were evaluated. An immediate contention might be that rural communities can subsidize industrial expansion up to $3,334 per year per employee. However, reliance on an average net gain per employee is misleading. First, the $3,334 per employee already contains some subsidies such as local industrial development program costs, tax concessions, etc. The community net gains in essence represent the additional bid the community could have made to increase the number of local industrial job opportunities. Second, the community net gains are calculated on the assumption that the new plant locates and continues to operate.

The maximum bid, as calculated herein, that can be made to attract a new industrial plant is reduced when charges are made for the cost of unsuccessful negotiations and risk of firm exodus or failure. Third, the economic development efforts of many rural communities are hampered by a lack of infrastructure. There are an insufficient number of plants for rural areas and "buying" industrial jobs will not be the highest and best use of funds for many rural communities. Several of the most successful industry ventures in this study were "home grown"; but where a community would attract an outsde firm it should negotiate the best terms available.

The small or negative net gains to the municipal government and school district sectors suggest that local tax concessions are quite likely to have an adverse effect on the public sector in the community. This means that local inducement programs should not rely on tax concessions but should emphasize some other form of inducement. This could be some form of payroll checkoff directly related to local payroll and employment, or reliance on federally supported industrial development programs. Communities that seek industry only to increase their local tax base and reduce their tax burden are likely to be disappointed.

The substantial spillover of economic effects from the community has three implications. First, the use of county impact to estimate the

commitment of the community to an industrial development program can lead to an overinvestment by the community in an industrial development program. Second, the use of gross payroll rather than payroll adjusted for local spending can also overestimate economic benefits from industrial development.Third, the spillovers re-emphasize the advantages of a coordinated, areawide industrial development program.

Only slight differences in community net gains existed between enlarged and new industrial plants. Some of the most successful development programs are home grown, and assistance to help local industry expand should be an integral part of any industrial development program.

The potential costs of over-subsidization when a firm receives a one-time subsidy and fails to continue can be sizable. The risk associated with this cost partly explains the very high returns to communities from industrial subsidization programs. The high rates of return are explained not only by risk of firm failure before sufficient economic effects occur in the community to pay back the subsidy, but also by imperfect knowledge and poorly functioning markets that characterize the industrial development process.

Analysis of the national net gains from rural economic development imply that in the short-run location of industrial plants in rural areas is beneficial to both the local community and nation. In the long run, retaining the population in rural areas via low wage industries can have adverse effects on national income. However, the "long run" is so distant for the plants in this study that bringing jobs within reach of rural people appears to be consistent with national economic efficiency over time. Nevertheless it is neither possible nor desirable to bring jobs to every rural community, and continued efforts to assist human resource development and mobility are very important.

Footnotes

1. The subsidization of industry need not take the form of a cash grant from the community to the industry. For example, activities might include promotional programs, lease-purchase arrangements for site or building, and the expansion of public facilities and services to accommodate industrial needs.

2. "Expansion" as used here includes "home grown" new plants attraction of a new plant to the area, or the enlargement of a local plant.

3. Although only 30 percent of the workers responded to the mail-in questionnaire, company records were utilized to verify crucial information such as wages, family size, place of residence and prior income. There were no significant divergences between the information compiled from the labor questionnairs and company rcords.

4. Secondary includes both indirect and induced effects. The indirect effect is caused by the spending of the plant payroll and local purchases by the plant. The induced effect is caused by a change in consumption by local households that is not directly related to the new plant.

5. The percent of income spent in the community is the average propensity to spend locally.

6. Only previous jobs in the community are considered as potential sources of opportunity costs. The foregone income from unrefilled previous jobs is internalized in a fashion similar to internalizing the plant payroll. Because only previous jobs in the community are considered, the workers at the plant will be a fairly reliable source of information. This analysis assumes that prior jobs were refilled at previous annual wage rates. Although this need not always be the case, any general increase in local wage scales will benefit labor at the expense of capital and management. Likewise, the loss of any welfare payments financed in a large part by tax contributions from other locales is another opportunity cost that is not measured.

7. The average rather than marginal effects in the public sector from industry is used. Over the range of change in population and student enrollment in this study, the average cost [21] (revenue) curve is considered to be flat and therefore nearly equal to marginal cost (revenue).

8. A test of the difference of two means resulted in a t statistic of .657 which is not significant with 10 degrees of freedom.

9. Failure to account for returns to capital introduces bias, but regression analysis of the rate of return by industry indicates no significant differences by city size.

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Appendix Table I. Net Gains to the Private Sector

Benefits			
Plant Wages and Salaries Internalized in the Community[1]	$____		
Total Primary Benefits		$____	
Internalized Plant Wages and Salaries x Community Income Multiplier	____		
Total Secondary Benefits		____	
Total Benefits to Private Sector			$____
Costs:			
Internalized Income from Previous Jobs Not Refilled in the Community	____		
Industrial Development Program Costs	____		
Total Primary Costs		____	
Internalized Income from Jobs Not Refilled x Community Income Multiplier	____		
Total Secondary Costs		____	
Total Costs to Private Sector			____
Net Gain to Private Sector:			
Total Benefits — Total Costs			____

[1]Internalized wages and salaries are wages and salaries remaining in the community.

Appendix Table II. Net Gains to the Municipal Government Sector

Benefits:			
Ad Valorem Taxes New Homes	$____		
Ad Valorem Taxes Plant's Additional Investment	____		
Utility Revenues from New Plant	____		
Utility Revenues from New Residents	____		
Sales Tax from Plant Payroll Spent Locally	____		
Other Tax Revenues from New Residents	____		
Total Primary Benefits		$____	
Change in Tax Revenues from Former Residents	____		
Total Secondary Benefits		____	
Total Benefits			$____
Costs:			
Additional Services Provided Plant	____		
Services Provided New Residents	____		
Services Provided New In-Commuters	____		
Annual Municipal Government Incentive Costs	____		
Total Primary Costs		____	
Additional Services Provided Former Residents	____		
Total Secondary Costs		____	
Total Costs			____
Net Gain to Municipal Government Sector:			
Total Benefits—Total Costs			____

Table III. Net Gains to the School District Sector

Benefits:			
Ad Valorem Taxes New Homes	$____		
Ad Valorem Taxes Plant's Additional Investment	____		
Additional State Aid from New Students	____		
Additional Federal Aid from New Students	____		
Total Primary Benefits		$____	
Change in Revenues from Former Students	____		
Total Secondary Benefits		____	
Total Benefits			$____
Costs:			
Additional Capital Expenditures Due to New Pupils	____		
Additional Educational Services Provided New Pupils	____		
Ad Valorem Tax Revenues Lost from Tax Breaks to the Plant	____		
Total Primary Costs		____	
Additional Educational Services Provided Former Pupils	____		
Total Secondary Costs		____	
Total Costs			____
Net Gain to School District Sector:			
Total Benefits—Total Costs			____

Table IV. Net Gains to the Community

Net Gain to Community's Private Sector	$____
Net Gain to the Municipal Government Sector	____
Net Gain to the School District Sector	____
Net Gain to the Total Community	____

Table V. County Income Multipliers for the Study Area

County	Income Multiplier: Total Effect	Income Multiplier: Secondary Effect Only
Adair	1.851	.851
Cherokee	2.023	1.023
Muskogee	2.078	1.078
Sequoyah	2.151	1.151

Source: Compiled from Larkin Warner, *Computerized County Building Block Data,* Department of Economics, Oklahoma State University, and Dean Schreiner and George Muncrief, *Estimating Regional Information Systems for Efficient Physical Planning with Application to Community Service Planning in South Central Oklahoma,* Oklahoma Agricultural Expreiment Station Journal Article Number 2313.

Table VI. Propensity to Consume Locally: Percent of Total Income Spent in the Community[1]

Community	Workers Place of Residence: In the Community	In the County But Outside the Community	Outside the County
Weighted by Southern Urban Consumer Expenditure Survey			
Haskell	55.3051	59.1004	65.8434
Muskogee	60.8750	62.3213	45.1525
Sallisaw	86.1025	0.0000[2]	0.0000[2]
Stilwell	54.6164	0.0000[2]	16.2200
Tahlequah	70.5585	72.2803	34.1516
All Communities	60.4656	62.7630	44.4123
Weighted by Southern Rural Nonfarm Consumer Expenditure Survey			
Haskell	52.0358	56.7175	62.8693
Muskogee	59.1809	60.4420	44.8927
Sallisaw	84.1624	0.0000[2]	0.0000[2]
Stilwell	54.1631	0.0000[2]	22.5518
Tahlequah	68.0882	76.8224	56.5664
All Communities	58.7052	61.3151	45.9940

[1]Compiled from survey taken between December 1970 and May 1971.
[2]No workers responded to this category by this place of residence.

Table VII. Annual Impact of Industrial Expansion on Rural Communities: Case I (In 1967 Dollars)

	Plant Identification											
	A	B	C	D	E	F	G	H	I	J	K	L
Private Sector												
Primary Benefits	132,550	22,304	108,099	40,679	32,146	122,216	50,492	38,529	222,986	193,684	56,033	230.137
Primary Costs	9,215	0	0	0	0	11,883	14,707	4,561	31,525	39,637	4,303	17,029
Net Gain	123,335	22,304	108,099	40,679	32,146	110,333	35,785	33,968	191,461	154,047	51,730	213,108
Municipal Government Sector												
Primary Benefits	5,800	250	1,778	3,747	2,339	19,973	9,636	4,008	3,726	20,056	6,761	20,136
Primary Costs	6,139	59	1,045	3,764	2,016	22,824	9,398	3,832	2,171	19,145	6,704	18,004
Net Gain	—339	191	733	—17	323	—2,851	238	176	1,555	911	57	2,132
School District Sector												
Primary Benefits	2,557	47	561	1,119	71	6,262	104	1,888	2,752	4,239	1,223	5,259
Primary Costs	0	0	405	879	0	6,039	513	2,248	3,106	3,677	1,099	3,053
Net Gain	2,557	47	156	240	71	223	—409	—360	—354	562	124	2,206
Community												
Net Gain	125,553	22,542	108,988	40,902	32,540	107,705	35,614	33,784	192,662	155,520	51,911	217,446

Source: [27]

Table VIII. Annual Impact of Industrial Expansion on Rural Communities: Case III (In 1967 Dollars)

	Plant Identification											
	A	B	C	D	E	F	G	H	I	J	K	L
Private Sector												
Primary Benefits	132,550	22,304	108,099	40,679	32,146	122,216	50,492	38,529	222,986	193,684	56,033	230,137
Secondary Benefits	75,142	15,211	60,638	31,204	24,659	80,954	32,912	25,117	145,359	126,253	36,523	150,008
Total Benefits	207,692	37,515	168,737	71,883	56,805	203,170	83,404	63,646	368,345	319,937	92,556	380,145
Total Costs	0	0	0	0	0	0	0	0	0	0	0	0
Net Gain	207,692	37,515	168,737	71,883	56,805	203,170	83,404	63,646	368,345	319,937	92,556	352,016
Municipal Government Sector												
Primary Benefits	5,800	250	1,778	3,747	2,339	20,121	9,783	4,053	4,041	20,453	6,816	20,288
Secondary Benefits	1,342	211	30	568	449	1,291	671	1,183	2,399	2,038	592	4,069
Total Benefits	7,142	416	1,808	4,315	2,788	21,412	10,454	5,236	6,440	22,491	7,408	24,357
Primary Costs	6,139	59	1,045	3,764	2,016	22,824	9,398	3,832	2,171	19,145	6,704	18,004
Secondary Cocts	1,448	211	29	553	437	961	488	871	1,770	1,483	441	2,955
Total Costs	7,587	270	1,074	4,317	2,453	23,785	9,886	4,703	3,941	20,628	7,145	20,959
Net Gain	—445	191	734	—2	335	—2,373	568	533	2,499	1,863	263	3,398
School District Sector												
Primary Benefits	2,557	47	561	1,119	71	6,262	104	1,888	2,752	4,239	1,223	5,259
Secondary Benefits	2,707	618	167	821	649	1,951	1,026	592	3,258	3,118	896	6,424
Total Benefits	5,264	665	728	1,940	720	8,213	1,130	2,480	6,010	7,357	2,119	11,683
Primary Costs	0	0	405	879	0	6,039	513	2,248	3,106	3,677	1,099	3,053
Secondary Costs	2,647	589	164	799	632	2,002	1,008	580	3,719	3,062	919	6,360
Total Costs	2,647	589	569	1,678	632	8,041	1,521	2,828	6,825	6,739	2,018	9,413
Net Gain	2,617	76	159	262	88	172	—391	—348	—815	618	101	2,270
Community												
Net Gain	209,864	37,782	169,630	72,143	57,228	200,969	83,581	63,831	370,029	322,418	92,920	357,684

Source: [27]