

Rural Economic Development Policies for the Midwestern States

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Abstract

Economic restructuring in rural areas of the Midwest has stimulated a myriad of initiatives. This paper examines recent economic development patterns in the rural Midwest and reviews traditional policy approaches prescribed for dealing with rural problems. These approaches relate to resource availability, technology, markets, space and location, and institutions. Since past development policies often have failed to recognize the underlying changes in economic structure that have led to depressed conditions, an alternative approach to rural economic policy is proposed. A comprehensive rural development effort needs to have a more scientific basis if it is to be sustainable and politically sound. The framework to facilitate rural development policymaking advocated in this paper utilizes modern information system procedures for policy design, monitoring policy change, and evaluation.

Introduction

The rural economy in the midwestern United States has been in economic transition since the settlement of the countryside. Recently this transition has been led by a changing agriculture. The introduction of more capital-intensive agricultural technologies and the increase in farm size have caused a secular outward migration of labor from agriculture. These changes have engendered a special type of rural poverty: one where formerly prosperous regions and residents face displacement and greatly reduced standards of living. As a result the rural economy, dependent on agriculture, has also changed. These patterns of change and the associated economic adjustment problems have received increased public attention. The farm financial crisis of the early 1980s, high government costs of the 1981 and 1985 farm bills, and the disparity between economic growth in the rural and nonrural economies have all combined to suggest to the state and federal governments the need for more coherent and realistic rural development policies.

The widespread recognition that agriculture cannot provide an economic base sufficient to sustain population and income levels consistent with those achieved in the nonagricultural sectors of the economy makes the current rural development policy problem especially difficult for the Midwest. If rural communities continue to depend on agriculture as their primary economic base, changes in economic structure are likely to be major. Population levels will continue to

decline. Towns and cities that depend on servicing the agricultural population for their economic welfare will adjust (Buttel 1983). And, in many cases, these adjustments will be of significant magnitude to render the associated communities nonviable as economic units.

Not surprisingly, state and local governments have initiated a myriad of policies designed to reverse these trends in population and per capita income. Unfortunately, many of these policies have been shortsighted in nature, seeking only short-term solutions to more fundamental problems. Longer term and more systematic approaches to economic policy for the rural Midwest, which are required if these policies are to do more than buffer the structural adjustment and downsizing of an economy still dependent on agriculture, are difficult to initiate. This is due, in part, to the relatively poorly developed economic framework on which such policies rest.

There is no agreed upon framework for achieving development in rural communities in the Midwest (Nelson 1984). It is clear that far reaching policies, directed at structural change, will involve significant adjustment costs, borne unevenly by current citizens of the communities. Appropriate compensation schemes will have to be integrated into these broad policy initiatives if they are to be successful. Special interest groups, representing those damaged by the policy changes, have the capability to sabotage such broad policy initiatives and, unless there are economic incentives to behave differently, they will utilize their capabilities. Accordingly, development packages must reflect the interests of those to be helped as well as those that will be injured.

Presented here is one more step in the search for a coherent set of ideas that can be used as a basis for comprehensive rural development policies. Attention is directed to evaluating what a comprehensive framework is as well as what it is not, particularly as it relates to past development policy initiatives. An important theme in the argument for a more realistic structure to support comprehensive development efforts is the initiation of programs to produce adequate information systems for policy design, monitoring policy change, and evaluation. Without the aid of a well-defined prescriptive framework for development, it is extremely important to have mechanisms for feedback to policymakers, enabling them to steer through what is essentially a poorly charted economic course.

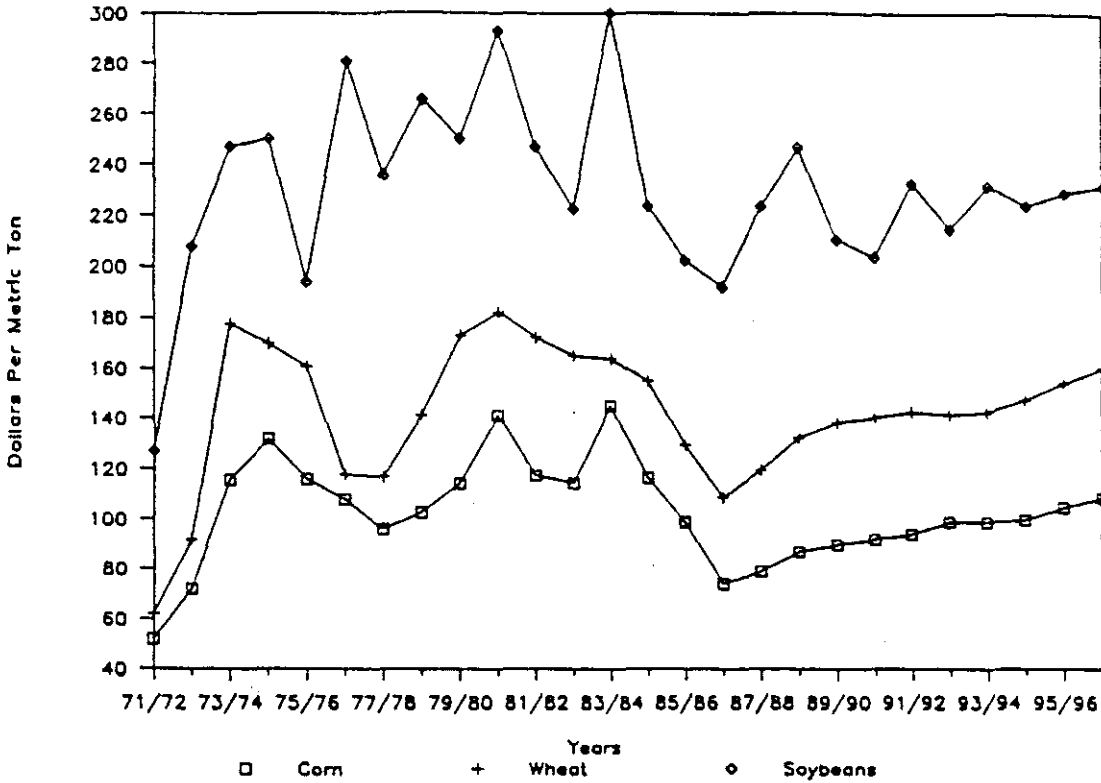
Agriculture and Rural Economies

The difficult economic situation of the Midwest's rural areas is apparent. The objective here is not to document fully the decline in midwestern economies, but rather to show why agriculture cannot be relied upon as the primary economic engine to drive the development process in the future. While agriculture will always be important, increased population levels and increased per capita incomes in the rural areas of midwestern states cannot be sustained through agriculture alone. Those involved in rural communities in the Midwest are aware of these difficulties. The value of this discussion is not the enumeration of these problems, but rather the documentation of the fallacy in those approaches that suggest a rekindling of economic activity and growth based on agriculture.

Figure 1 shows the long-term annual gulf port prices of agricultural commodities that are of primary importance in the Midwest: soybeans, corn, and wheat. Also included in the figure are projections for the period 1996/97. These projections incorporate "consensus" macroeconomic conditions in the United States and the rest of the world, plus a continuation of current agricultural policies by the United States and major trading countries (FAPRI 1988). On the basis of these long-term trends in real prices, a stark conclusion to be reached is that, unless there are massive productivity increases, real gross income in the Midwest is likely to be constant or to fall. Even with a highly subsidized agriculture, the Midwest can look forward to an agricultural economic base income that is, at best, constant in real terms. As the Food and Agricultural Policy Research Institute report indicates, the secular downward decline is likely to continue, making it likely that gross receipts for agriculture will go down, rather than increase, in real terms in the future.

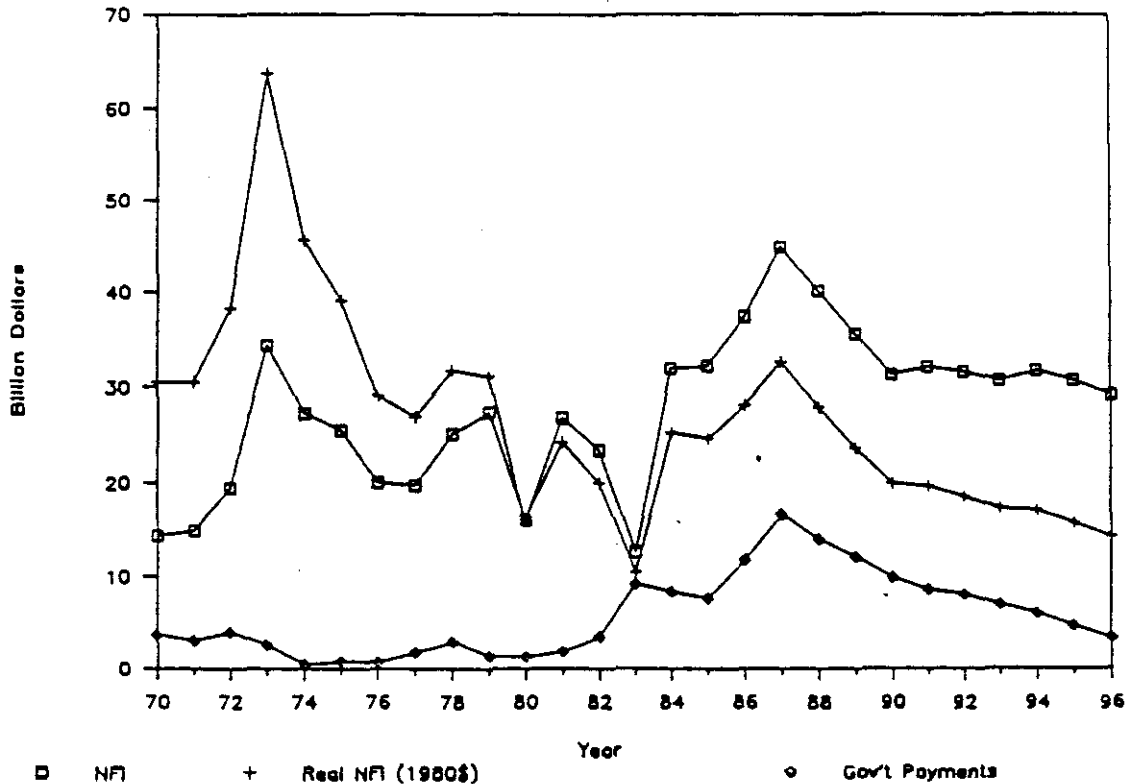
Consequences of the change in agricultural production technology, and associated labor-saving changes in agribusiness or agriculturally supported industries, are demonstrated in Table 1. Table 1 shows nonfarm employment for midwestern states and the United States for the period 1960 to 1987. The trend is clear. From 1960 to 1970, the percent change in nonfarm employment was positive, but in only one case did it equal the national average. Some states showed employment increases greater than the national average in the 1970-1980 period: Kansas, Minnesota, Nebraska, and South Dakota. This situation completely reversed itself in the period 1980-1984. Only Minnesota

Figure 1: U.S. Gulf Port Prices



Source: Food and Agricultural Policy Research Institute. 1988. "FAPRI Ten Year International Agricultural Outlook." Staff Report #1-88.

Figure 2: U.S. NFI and Gov't Payments



Source: Food and Agricultural Policy Research Institute. 1988. "FAPRI Ten Year International Agricultural Outlook." Staff Report #1-88.

Table 1. Total Nonfarm Employment for Midwestern States and U.S., 1960-1987 (in thousands)

	1960	1970	% Change 1960-1970	1980	% Change 1970-1980	1984	% Change 1980-1984	1987	% Change 1984-1987
U.S.	52,989	70,644	33	90,564	28	95,882	6	102,105	6
Iowa	680	881	30	1,110	26	1,080	(3)	1,129	5
Illinois	3,417	4,337	27	4,892	13	4,697	(4)	4,934	5
Indiana	1,429	1,847	29	2,137	16	2,178	2	2,362	8
Kansas	557	677	22	949	40	977	3	1,019	4
Minnesota	926	1,309	41	1,770	35	1,883	6	1,997	6
Missouri	1,349	1,654	23	1,969	19	2,044	4	2,190	7
Nebraska	380	481	27	631	31	644	2	679	5
South Dakota	139	176	27	237	35	247	4	258	4
Wisconsin	1,186	1,535	29	1,945	27	1,990	2	2,102	6

Source: U.S. Department of Labor, Handbook of Labor Statistics, 1985.
 U.S. Employment and Earnings, various issues.
 Numbers in parentheses () indicate negative values.

achieved the national average of 6 percent change. Iowa and Illinois had declines of 3 and 4 percent, respectively. Finally, during the period 1984-1987, employment change in the Midwest is, in some cases, at or near the national average.

There is reason to be cautious about these figures, however. During this time, massive subsidies (for example, \$25 billion, or about 15 percent of farm gross receipts in 1986) were provided by direct government payments. And many of the states showing strong increases in nonfarm employment achieved these increases in nonrural areas. Generally, the rural area employment decreased. Rural areas also suffer from higher levels of underemployment than metropolitan areas. The current data collection procedures that focus on unemployment mask the low pay, reduced hours, and other job limitations confronting much of the rural work force (Lichter 1987).

The personal income figures for the midwestern states, compared to the United States for the period 1960-1986, are shown in Table 2. These income figures essentially mirror the nonfarm employment figures. While some progress is shown relative to the nation or various states, most of the personal income change has not occurred in agriculture. Behind these numbers lies the uneasy fact that gross agricultural income during the latter period has been subsidized at rates that are not likely to be sustained in the future (FAPRI 1988). In many cases the aggregate total personal income for each state screens several patterns occurring in rural areas. In rural areas with a declining employment base, wage and salary income is a declining relative share of total personal income for the region. In rural counties where elderly and retired persons are a

Table 2. Total Personal Income for Midwestern States and U.S., 1960-1986 (Millions of Dollars)

	1960	1970	% Change 1960-1970	1980	% Change 1970-1980	1983	% Change 1980-1983	1986	% Change 1984-1986
U.S.	\$398,843	\$803,922	102	\$2,160,034	169	\$3,175,250	47	\$3,529,744	11
Iowa	5,539	10,725	94	26,829	150	37,240	39	39,296	6
Illinois	26,620	50,232	89	119,474	138	165,635	39	187,749	13
Indiana	10,136	19,433	92	49,235	153	66,929	36	75,492	13
Kansas	4,640	8,490	83	23,199	173	33,335	44	37,498	12
Minnesota	7,168	14,838	107	39,445	166	51,976	32	65,955	27
Missouri	9,096	17,360	91	43,603	151	63,587	46	72,740	14
Nebraska	2,845	5,587	96	13,968	150	22,084	58	23,043	4
South Dakota	1,246	2,093	68	5,390	158	8,096	50	8,757	8
Wisconsin	8,684	16,703	92	44,262	165	61,645	39	69,490	13

Source: U.S. Commerce Department, BEA, Local Area Personal Income.

large percentage of the total population, government transfer payments and dividends, interest, and rents are becoming the major source of personal income. As a result, rural areas that have not been able to diversify and replace farm related jobs with nonfarm employment are likely to experience increased incidences of poverty as they fall behind the growth levels of other regions.

Table 3 shows net farm income for the midwestern states, 1960-1986, in millions of dollars. Note that the income levels are in nominal terms; real income for agriculture dropped precipitously over the period. Figure 2 shows real farm income for the United States for the period 1970-1986, with projections to 1996. This should be compared to Table 3, so that overly optimistic conclusions are not drawn about the percent changes in nominal income. It is also important to note that the erratic nature of the change in net farm income over time is markedly affected by government payments and policies not related to agriculture.

Finally, Table 4 shows the percentage of growth in employment in agriculturally related industries in the Midwest. This table indicates that the labor-saving technology that has changed the capital-labor ratio and farm size for production agriculture has also pervaded the agriculturally related industries. With some exceptions, there have been significant declines in employment. The exceptions are in agricultural services, which are not large in terms of total employment compared to the other industries. Thus, income from agriculture will be constant at best, abstracting from unanticipated technological changes. Employment multipliers on this income for agriculturally related

Table 3. Net Farm Income (NFI) for Midwestern States and the U.S., 1960-1986 (Millions of Dollars)

	U.S.	Iowa	Illinois	Indiana	Kansas	Minnesota	Missouri	Nebraska	South Dakota	Wisconsin
1959	\$10,713	\$590	\$534	\$291	\$341	\$348	\$394	\$296	\$110	\$417
1960	11,211	611	534	347	396	448	381	328	272	371
1961	11,957	702	673	432	405	470	422	252	207	439
Average NFI 1959-1961	11,294	634	580	357	381	422	399	292	196	409
1969	14,293	1,114	816	537	398	659	381	531	309	574
1970	14,366	1,080	630	363	538	816	447	468	328	576
1971	15,012	864	793	590	637	732	486	614	361	636
Average NFI 1969-1971	14,557	1,019	746	497	524	736	438	538	333	595
% Change 1960-1970	29	61	29	39	38	74	10	84	69	46
1979	31,078	1,846	1,996	801	1,140	1,431	1,261	1,093	643	1,530
1980	20,180	710	494	394	223	1,001	334	330	663	1,382
1981	29,842	2,096	1,837	442	679	1,266	894	1,191	230	1,327
Average NFI 1979-1981	27,033	1,551	1,442	546	681	1,233	830	871	512	1,413
% Change 1970-1980	86	52	93	10	30	68	89	62	54	137
1983	12,691	-205	-213	-175	-32	-83	-116	94	-46	-65
1984	32,022	1,281	1,182	763	812	1,207	472	1,184	551	1,118
1985	32,334	1,590	1,538	633	1,148	1,245	765	1,461	607	1,049
1986	37,484	2,331	1,475	705	1,477	1,670	698	1,773	754	1,562
Average NFI 1984-1986	28,633	1,249	996	482	851	1,010	455	1,128	467	916
% Change 1980-1986	6	(19)	(31)	(12)	25	(18)	(45)	29	(9)	(35)

Source: U.S.D.A., Economic Indicators of the Farm Sector,
 U.S.D.A., Farm Income Data: A Historical Perspective, 1986.
 Numbers in parentheses () indicate negative values.

Table 4. Employment and Percentage Growth in Employment in Agriculturally Related Industries in Midwest, 1970-1980 and 1980-1985

	U.S.	Iowa	Illinois	Indiana	Kansas	Minnesota	Missouri	Nebraska	South Dakota	Wisconsin
Agricultural Services										
1970	189,026	3,449	5,831	2,917	2,546	2,757	3,543	1,754	(0)	3,287
1980	315,200	3,642	8,299	4,068	2,210	3,778	4,888	1,954	606	43,017
1985	519,700	3,992	11,814	6,224	3,140	4,555	6,086	6,498	954	5,777
% Change 1970-1980	67	6	42	39	(13)	37	38	11	(0)	1,209
% Change 1980-1985	65	10	42	53	42	21	25	233	57	(87)
Food Products										
1970	1,595,472	49,949	118,787	40,337	18,024	45,481	44,920	24,930	7,134	53,848
1980	2,384,700	46,035	95,610	35,884	22,773	39,861	39,940	24,768	7,743	54,300
1985	2,884,300	38,355	82,639	33,442	24,658	37,614	36,421	23,229	7,387	50,023
% Change 1970-1980	49	(8)	(20)	(11)	26	(12)	(11)	(1)	9	1
% Change 1980-1985	21	(17)	(14)	(7)	8	(6)	(9)	(6)	(5)	(8)
Lumber & Wood Prod.										
1970	554,835	3,678	12,000	11,495	(0)	7,514	7,907	(0)	679	15,814
1980	897,100	5,034	12,263	19,310	3,704	13,699	10,486	2,378	1,583	21,910
1985	1,127,800	4,408	10,770	17,914	3,144	12,748	8,657	1,777	1,457	19,757
% Change 1970-1980	62	37	2	68	(0)	82	33	(0)	133	39
% Change 1980-1985	26	(12)	(12)	(7)	(15)	(7)	(17)	(25)	(8)	(10)
Agricultural Chemicals										
1970	51,095	1,203	1,635	1,566	(0)	411	743	220	(0)	(0)
1980	107,200	1,381	1,926	1,806	(0)	478	3,328	693	(0)	394
1985	123,600	1,569	726	1,819	506	311	2,744	827	26	458
% Change 1970-1980	110	15	18	15	(0)	16	348	215	(0)	(0)
% Change 1980-1985	15	14	(62)	1	(0)	(35)	(18)	19	(0)	16
Farm Machinery										
1970	126,958	21,173	28,835	5,942	4,495	5,046	2,648	4,176	325	14,168
1980	298,400	29,039	22,914	5,748	8,319	7,124	(0)	9,085	1,561	18,133
1985	207,100	14,296	11,829	2,854	4,966	3,357	1,278	5,596	520	9,801
% Change 1970-1980	135	37	(21)	(3)	85	41	(0)	118	380	28
% Change 1980-1985	(31)	(51)	(48)	(50)	(40)	(53)	(0)	(38)	(67)	(46)
Non-Ag Manufacturing										
1970	16,947,840	138,026	1,206,214	654,108	119,510	266,900	402,388	56,958	7,709	432,430
1980	31,991,900	176,455	1,167,311	621,836	172,406	331,580	404,606	63,912	16,374	476,647
1985	41,437,300	142,788	936,787	550,368	152,465	331,546	376,995	60,482	17,736	417,794
% Change 1970-1980	89	28	(3)	(5)	44	24	1	12	112	10
% Change 1980-1985	30	(19)	(20)	(11)	(12)	(0)	(7)	(5)	8	(12)

Source: U.S. Department of Commerce, County Business Patterns
 "D" denotes figures withheld to avoid disclosure of operations of individual establishments.
 Numbers in parentheses () indicate negative values.

industries are smaller now than in the past. As shown at the bottom of Table 4, nonagricultural manufacturing employment in the Midwest is down as well. This trend is consistent with national economic conditions. The major sources of growth for the Midwest are in government, services, financial, and industries in the nonmanufacturing sectors (U.S. Department of Labor 1986).

Thus, the evidence shows that agricultural income is unlikely to grow. Changing technologies for agriculture suggest that if income remains constant, employment in agriculture will decrease. Employment multipliers for agricultural income in agriculturally related industries are becoming smaller, as these industries reorganize and utilize labor-saving technologies. Nonagricultural manufacturing employment is decreasing in the Midwest more rapidly than it is nationally. These broad trends provide evidence that economic development policies need to be directed to the rural Midwest. Reversing the trend of the Midwest compared to the rest of the United States for nonmanufacturing is a possibility. Concentrating on forms of employment in rapid growth industries that are not locationally tied seems an appropriate general direction for development policy.

Development Policy Objectives

The most commonly articulated economic development policy objectives involve income and employment. In fact, comparisons of economic status among communities, states, and nations frequently involve per capita income. Increased employment is important in this context since it is indicative of the total income. However, these comparisons fail to go beyond these generally accepted indices of

development to investigate the development perceptions of citizens, particularly in rural communities. More precise identification of development perceptions of affected populations can provide the basis for an improved framework for development policy. In a sense, these more specific objectives provide guidelines as to how it will be politically acceptable to organize and stimulate the changes that will lead to improved per capita income and higher employment.

As a result of an admittedly unsystematic review of the rhetoric on economic development for rural communities in the Midwest, four of these more refined perceptions of development objectives emerge. These objectives relate to issues of restoration, distribution, biology, and underperformance. Many of the development initiatives and articulated development goals of midwestern states can be classified as designed to achieve these more specific objectives. Of course, all are appropriate and achievable in certain circumstances. The question for rural communities in the Midwest and for the development policy framework is whether these objectives are attainable, given the underlying trends in agriculture and agriculturally related industries.

Restoration

Those who would reverse the modern technology-driven changes in the structure of agriculture and revitalize rural communities to return to a past condition are arguing for development policies that stress economic restoration. The Harkin-Gephardt Bill, introduced during the 1985 farm bill debate, is an example of a policy approach directed toward achieving higher income and increased employment through restoration of agriculture and rural communities. These policies impose significant

costs in the form of welfare losses caused by the economic distortions they create. Although substantial income could be moved back into rural communities, this movement of income would come at a substantial cost to society. Perhaps a more workable example of restoration as a development policy objective would involve a valley that experiences disastrous floods. Here, the idea of restoring the communities in the valley to a previous state is relatively easy to articulate and the policies to achieve these results are easily determined as well.

Two points are in order. First, policies aimed at restoration of the economic structure and activity in rural communities must be directed at the agricultural sector. In the past, communities were based on a different type of agriculture and were fostered by policies appropriate to that time. Second, the success of restoration ideas might require going beyond agriculture to agriculturally related industries, where consequences of technical change for employment and income have paralleled those in agriculture. The general conclusion is that restoration, while an appropriate objective in some isolated and special development contexts, is losing ground as a guiding principle or objective for rural economic development in the midwestern states.

Distribution

A second concept of development refers to distribution, or inequities, in the economic system. These types of concerns with economic development have led to targeted assistance programs. Examples of these programs include those directed to the poor in the U.S. economy: food stamps, aid to families with dependent children, disaster assistance, educational loans, and others. An interesting feature of

all of these distributional policies is an implicit assumption that they are needed only for a brief transitional period in each case. In the short run, affected households or individuals are being assisted on a temporary basis, until they can participate more fully in the economic growth or the economy of the region. In the Midwest, these distributional problems are important and could provide a basis for the development of compensation types of policies. If the economies change, compensation may be due those who are affected negatively in order to benefit society as a whole. As the economy is currently evolving, there are problems of distribution. The smaller agricultural base implies a downsizing of agricultural service industries, and other adjustments. Perhaps a political basis for development policy will have to include elements of distribution that can provide the basis for compensation schemes.

Biology

A third development perception can be described as biologic in nature. Here, the development process is seen as something similar to the process occurring in an ecosystem. Niches evolve that permit "economic opportunities." Rural communities, and more generally the rural sector, are encouraged to take advantage of these opportunities. Policies are organized, not to change the structure of the communities, but to support these opportunity areas. Cottage industries, linkages between rural and urban communities to take advantage of excess labor, new product development and identification of nonlocation-specific industries are examples of the kinds of ideas that dominate these

perceptions of objectives for economic growth. This is a very passive economic growth objective. It appears to have been embraced by many public support services. This is perhaps an unrealistic approach to growth if the major economic base of the communities is declining, as it is in the Midwest. Still, there are advantages to seeing growth objectives in terms of the biological framework. Policies related to increased employment and per capita income through the biological approach can be easily identified. A major question for this ecosystem view of economics is whether or not the system can be sustained at its current energy level without the infusion of a source of income and employment to counter the declines in agriculture.

Underperformance

An emerging concept of development involves the idea of economic underperformance in comparison to other rural communities, other states, or other nations. Essentially, the idea is to compare employment growth and employment patterns as well as per capita income to that in other areas. Two possibilities exist under this framework. In the first case, the population can move to the other areas, adjusting the employment levels and per capita incomes so that they are more comparable. Alternatively, policy initiatives can be undertaken to maintain or increase current population, employment levels, and corresponding per capita incomes. This approach guides policymakers to the primary sources of income and ultimately, in the case of the Midwest, to a concern about the size or dimensions of the state rural economies that can be supported by an agriculture sector as it is

currently structured, or as it will be in the future. The approach is useful in developing and transmitting examples of successful policies. Of course, the factors that account for the success of these policies need to be understood, but some general features emerge. Economic diversification, multiple primary industries, the importance of research and investment in human capital and infrastructure, and other factors emerge immediately as important if the underperformance objective is accepted.

In a recent program conducted by Pioneer Hi-Bred International in Des Moines, Iowa, rural economic development was addressed. The program, called "Search for Solutions," was novel in origin. The idea of the program was to bring together Pioneer employees, who for the most part live in rural midwestern communities, to discuss economic development possibilities. Common approaches to economic development were sought, and employees were encouraged to become involved in these economic development efforts.

As a part of the rural economic development project at Pioneer, a survey (Jensen et al. 1987) was conducted of employees who reside in rural communities. One of the survey questions referred to what have been termed specialized perceptions of development objectives:

"Which of the following phrases best characterizes the rural development aspirations of your community: Need to restore former economic vitality; there is uneven performance, some businesses and families are doing well and some not; and the community is not performing as well as it could with the resources available."

Of those responding to the questionnaire, 22 percent selected the first option, 57 percent selected the second option, and 21 percent selected the third option.

These results were relatively surprising to the conference organizers. They are believed to illustrate two things. First, these communities are in transition and the effects of this transition are being unevenly felt by rural residents. A strong basis for compensation as an integral part of development policies thus emerges. Second, there is a nearly even balance between those who would restore communities to their former structure and economic levels and those who are more concerned with underperformance. The emerging interest in underperformance, although not well stated in this questionnaire, is of interest. The questionnaire provides evidence, albeit weak, that the underperformance and distributional concerns about economic development together dominate the restoration perception. Biological perception was not included in the questionnaire, but much of the conference involved these ideas. Such ideas are appealing because they hold out the promise of economic growth and development in communities without fundamental structural change.

Past Policy Approaches

Past policy approaches have implicitly or explicitly involved a type of production function concept for economic development. A number of attempts have been made to classify or provide a taxonomy for these approaches, both economically and in other areas (Edwards 1981; Warren

1963). The discussion by Edwards has received wide attention among agricultural economists and has been influential in fashioning rural development policies in the USDA, in state government, and in local communities. This framework identifies five approaches to rural development policy: resources availability; technology; markets; space and location; and institutions. The ideas implicit in the framework are summarized briefly. It is noteworthy that, at least in this characterization of the summary, there is an absence of measures that could support the underperformance or distributional economic development objectives. Generally, the idea implicit in many of these approaches and in the Edwards scheme is to somehow reach a higher level of development with the same type of economic structure. Inequities are not addressed, and significant changes in structure are excluded, except perhaps in the ideas of institutions.

Resource Availability. Increasing resource availability to stimulate economic development is consistent with neoclassical economic theory. According to the theory, variations in economic growth among regions are explained by differences in resource productivity and endowments. Policies suggested by this theory relate to changing resource endowments and productivity through organization, technology transfer, regulating markets, taxes and income transfers, and other means. For productivity growth, endowments remain unchanged but output is increased through technology policy; e.g., education, infrastructure and other public actions, increasing output and, ultimately, the income of the region. At the regional level, tax and transfer policies are important determinants of both economic incentives and growth.

Technology. Technology is widely acknowledged as an important ingredient in economic growth and development policy. However, when it comes to defining processes for generating new technology and diffusion or technology adoption, the inadequacies of the current theory become apparent. The theory of technology and economic growth includes a set of not fully integrated hypotheses on new technologies, diffusion, and adoption. All of these add to aggregate cohesiveness necessary for communities to adapt over time (Warren 1963). Other examples of using technology as a growth strategy are increasing productivity, increasing efficiency, changing structure, and creating new products or new uses for existing outputs. It is clear from the history of economic growth that technology has played an important role in improving economic status. Exactly how the technology is developed, diffused, and adopted is more problematic, however.

Expanding Markets. Historically, many of the abrupt changes in economic growth have been related to market patterns and expansion. This has occurred particularly for communities specializing in agricultural commodities traded internationally. Expanding markets drive up prices, resulting in increased investment in human and physical capital and increased output. Returns to factors of production are increased, as is income. How markets are expanded and how the expansion is stimulated are matters less well understood. We know what to do if the markets expand, but not how the market expansions occur.

Space and Location. Space or location theory is highly developed and has a strong and integrated theoretical foundation. A central element of this study is the introduction of space, in addition to time,

in models of economic activity and growth. The theory and applied results emphasize the importance of location patterns, agglomeration, transportation, and other spatial dimensions of economic activity. Policies to improve economic development and growth derived from location theory relate to proximity of natural resources, linkages among industries or firms, regional specialization, and more generally, the implications of acknowledging the importance of spatial patterns in regionalization and economic growth.

Institutions. Institutions are widely recognized as important in facilitating economic growth and development. Theories of institution building emphasize infrastructure as a contributor to economic growth. How societies invest in infrastructure and what motivates this investment activity has represented an important area for economic growth research. Generally, since many services are public goods, private industry, if left alone to supply them, will underinvest simply because the economic benefits of the expanded services are not appropriable. Thus, much of the work and theory relating institutions to growth is concerned with public services. This approach to economic development has been most eclectic and multidisciplinary.

Policy Limitations and Implications

These development ideas of Edwards and Warren are heavily rooted in agriculture as the primary engine driving the economies of rural communities, implicitly or explicitly. They have merit in guiding policies that will increase the efficiency of these communities and enable them to capitalize on agriculture more fully as the primary

industry. They do not deal with the problem of the probable declining gross income for agriculture in midwestern rural communities and the subsequent necessity for adapting mechanisms of structural change for these economies. They also fail to address compensation for losers in the adjustment processes. These points do not invalidate these approaches, but they indicate that there may be additional steps or additional concepts necessary to provide a framework that can allow policymakers in rural communities and midwestern states to formulate development alternatives that can be politically acceptable and at the same time help to achieve significant economic progress.

A Rural Economic Development Policy Framework

The trends that have been documented for agriculture and for agriculturally related industries in the Midwest, relating to farm size, and estimates of the cost of significant policies to transfer income to the agricultural sector (FAPRI #1-87; FAPRI #1-88) suggest that the biological and restoration perceptions of development are not viable. Of course, there are special circumstances in which these approaches could work for rural communities. These have been indicated, to an extent, in the discussion of the perceptions. However, as principles to govern general development strategies, they are incomplete.

The more plausible possibilities for politically acceptable and sustainable economic development policies are those labeled distribution and underperformance. Distribution suggests the idea of compensation to buffer adjustment costs and facilitate acceptance of development policies that imply significant changes in economic structure.

Underperformance casts the development problem in relative terms and is more appropriate for high-income societies. As important, the underperformance perception argues for far more efficient, timely, and comprehensive information systems to support the development process. Economic units to which comparisons are being made must be fully understood, and the circumstances in the target regions for economic policy must be identified. Finally, careful monitoring of development policies must be made. Clearly, although the general objectives are improvement in employment and per capita income, the framework for development is limited to a loose comparison. This implies that increased observation and feedback to policymakers are necessary to ensure that development policies are achieving desired objectives or are at least moving toward those objectives.

The rural development policy framework advocated involves five steps:

- Develop systematic comparisons with other economies or economic units.
- Select growth targets and objectives.
- Organize the processes to achieve these growth targets, including appropriate changes in institutions.
- Carefully monitor and evaluate policy impacts.
- Recognize economic development policy as essentially a high-technology science.

A few comments about the approach are in order. Obviously, the approach is, at this point, exploratory. But it is advanced as a way to push beyond the methods provided by current and largely ineffective approaches to rural economic development policy.

Develop Systematic Comparisons

Since there is not a widely agreed upon framework for development in rural communities, examples or models for rural communities may be the most important source of information on development strategies. These comparisons must be made in a systematic manner. Anecdotal evidence is not useful. Frequently there are factors not included in review of anecdotal incidents that are responsible for the changes. Longer term performance should be evaluated, and careful information should be obtained about the development policy successes. This information should include not only the industry or base industry in question but the political structure, the taxing and income mechanisms, and other factors that identify the full environment within which industries operate. As emphasized, the call is for significant investment in intelligence about development process and successful development programs.

Select Growth Strategies

A general growth strategy for states and regions should be identified. This permits coordinated administration of economic development policies. In the past the midwestern states have advocated development programs on a more ad hoc basis. The result is a myriad of policies frequently working at cross purposes to each other. A comparison of a state's approaches to those taken by modern large corporations would provide a basis for evaluation of decision making processes. Successful corporations take full advantage of high-technology information and intelligence. No corporation enters a

new market or a new era without careful evaluation. Specific targets are set. Those responsible for the process are evaluated relative to the achievement of these targets. The development program or package is implemented very systematically. Growth strategies, targets, and packaging of approaches are essential to achieve success in developing rural communities.

Organize to Achieve Objectives

Many of the obstacles to development and growth of rural communities involve inequitable distribution of resources. The implications of these inequities from changes in economic structures must be addressed directly. Appropriate compensation schemes must be developed. It must be clear to the population in general that the communities or states will be better off as a whole, including compensation, than before. There is nothing morally wrong with compensation. In fact, what is being achieved is a change in economic structure. Economic factors that forfeit rents associated with past structures must be compensated in order to make the policy changes viable.

There are additional questions with respect to the "appropriate" levels of private and public infrastructure. Communities have high taxes, often because they are operating public services at uneconomic scales. Generally it is apparent that there are size thresholds for communities to operate various services efficiently. These must be recognized and appropriate changes made, either through cooperation, contracting with other communities, or even relocation of the sites or

individuals (perhaps involving compensation). All this implies very extensive development of information systems, so that those affected can be sure about outcomes and whether they are related to compensation or to transfer mechanisms that would, in turn, facilitate appropriate compensations to achieve the objectives.

Monitor and Evaluate

As mentioned, a general development framework does not exist. Under such circumstances, careful and timely management must be substituted for broadly accepted principles. But careful and timely management requires information. Essentially, the emphasis in economic development is more on management of change, however selected, than on the identification of a particular paradigm that leads all participants who somehow agree with it in the direction of improved levels of economic activity. Unfortunately, economic theory relating to policy management under changing conditions (for example, theories of second and third best, or of rent seeking) is not mature enough to provide substantial guidance. The best we can do is to integrate what we know about incentives, responses, compensation, and economic activity more generally into an effective management strategy. Public policy management will become a more important idea in the development of rural economic development policy.

Make Policy a High-Tech Science

The days of philosophizing about development change for midwestern rural America have passed. Sophisticated management strategies will be required to achieve increased per capita incomes and increased

employment in rural communities. Changes in the very structures of the communities will be required. Sophisticated compensation schemes will be necessary to sustain changes, and timely intervention by policymakers, or those responsible for administering development programs, must be achieved. In short, the process of achieving economic development policy change for rural communities and improving employment and income status will require advanced methods of processing and utilizing information. These advanced methods include better sensing and sampling, more timely processing, and the development of systems that can organize and utilize the information effectively. Carefully defined development packages must be produced, and the capacity for change and adaptation based on feedback from relatively current experiences must be made. Additionally, the comparisons to other communities, states, and/or organizations must be continual. Economic processes do not stand still. Technology grows rapidly, and the processes of economic development and economic development policy must be continuous and evolutionary.

Most, if not all, of the information and data required to implement and support this policy framework derive from state and local sources. With the federal government's withdrawal from local economic activity concerns and the decline of federally supported data systems, the states themselves must take much of the initiative. An encouraging possibility is the fact that there are many "unorthodox" data bases. Indicators can be developed from data available from private industry or currently collected for state regulatory agencies. Broader concepts for data bases, appropriate indicators, development objectives, and other factors

associated with the process are prerequisites to successful economic development policy.

The American Statistical Association has recognized the growing need for, and opportunities for development of, state and local statistical policies (Lehren 1988). As responsibilities for many social programs have shifted away from the federal government, state agencies have developed a need for information, but have also begun to generate information as a byproduct of administering such programs. Coordination of efforts among state and local governments is essential to maximize the informational benefits of statistical collecting and reporting.

It may be feasible to use the Bureau of Economic Analysis system of leading, lagging, and coincident indicators as a model from which to formulate local economic indicators. Bry and Baschan (1971) encourage local use of BEA-type indicators by pointing out that their development and analysis would enable policymakers not only to compare performance across regions, but also to evaluate past development efforts, and to use these evaluations as feedback to the policymaking process. To a limited degree, this BEA system has been used as a model for the development of a set of indicators for the state of New Jersey to monitor business cycle expansion and contraction (Loeb 1983). A completely developed system would require taking into account many of the same factors used by the BEA to determine the usefulness of an indicator. These factors include economic significance, statistical adequacy, timing, conformity, and currency (Zarnowitz and Boschan 1975).

Summary and Conclusions

This study has examined the recent economic development experiences and needs of the rural Midwest and reviewed the traditional policy approaches prescribed for dealing with rural area problems. Without a generally accepted framework to guide economic development policy, a myriad of initiatives have been proposed to deal with declining population and income trends in rural areas. This paper has proposed a somewhat different approach to economic development policy for the midwestern states. In part, the arguments have grown from frustration with past development policies in which states have failed to recognize the underlying changes in economic structure that have led to current depressed conditions. Also, economic development policy has been seen more as an art than as a science.

The process for developing rural economic policies must be structured more scientifically if it is to be both sustainable and politically sound. The framework advocated here is one that takes advantage of modern developments in information processing and management systems. Information systems must be more timely, development approaches must be more targeted, processes must be carefully monitored as they evolve, and efficient systems for managing the information and disseminating it must be developed. All of this information is costly, but the evolving information policy suggests that such a system is achievable.

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