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The community policy analysis network: A national infrastructure for community policy decision support

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1. Introduction

Changes in technology and economic and social patterns are driving major shifts in intergovernmental relations (Johnson and Scott 1998). Around the world, we are reshaping our structures of governance. Responsibility, if not authority, for public decisions is migrating toward the community level. This migration includes responsibility for economic development, but also covers land use, natural resource management, education, health care, public safety, and social amenities. There is a growing need today to develop and apply decision support tools that facilitate broader, more informed public participation in community governance (Schachter 1997) and arbitrate potential conflicts between competing demands for public resources, competing public agencies and regions, and competing interest groups.

Today, public issues analysis requires more sensitive indicators than traditional aggregate impact models offer (output, income, value-added, and employment). Decision-makers need and expect indicators of economic distribution, social change and dislocation, environmental change, fiscal balance, tax incidence, quality of public services, and overall quality of life. Decision-makers need to know the spatial, temporal, and distributional consequences in addition to the sectoral consequences of their alternatives. There is a growing need for accountability—the ability to monitor progress toward stated goals and to evaluate the desirability of chosen goals over alternatives.

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More fundamentally, technology has increased the availability of data and information but not necessarily the capacity to screen, relate, and store information—that is, to learn. There is a need for tools that will create the teachable moments and facilitate learning communities.

Since its inception nearly ten years ago, the Rural Policy Research Institute (RUPRI) has worked to foster the development and application of improved quantitative policy analysis tools for rural communities. The RUPRI goal is to create more effective capacity within communities to make decisions aided by these decision tools. Community decision support gives local community groups the ability to access a wide base of knowledge about their region, to interact with that knowledge, and, through technology, inform their planning and decision making process.

This paper describes the current state of RUPRI's efforts to encourage a nation-wide capacity to conduct community level policy analysis. Specifically, it reports on RUPRI's initiative to develop a set of comparable labor market-based fiscal impact models—the heart of an applied research and outreach program called the *Community Policy Analysis Network* (CPAN).¹ We start with a brief review of recent community and regional policy analysis tools in the country. Next we give an appraisal of the current status of the CPAN project and conclude by proposing desired outcomes and a means to achieve them over the next few years.

2. A history of community and regional modeling

Regional analysts have always had a bent for model building. The staple of regional scientists, the input-output model, has been applied to regions for almost half a century. But for many of the early years in this period, regional input-output models were expensive and usually outdated curiosities available only to the largest and richest communities or regions. In the last quarter century a number of innovations have occurred to make input-output more egalitarian.

The history of the IMPLAN system (Impact Model for PLANning) is particularly instructive. In 1979 the US Forest Service introduced IMPLAN, a system of county-level secondary data input-output models designed to meet its mandated need for accurate, timely economic impact projections. IMPLAN allowed the Forest Service to estimate, in a consistent fashion, the impacts of alternative strategies for managing the nation's vast forest resources.

Development of a widely applicable modeling system such as IMPLAN required not only locally specific information but also general coverage. The economies of many communities and regions are too diverse to make meaning-

¹For more information regarding the conceptual framework of the labor market models, see Johnson and Scott (1997).

ful impact projections with a generic model. Given the thousands of counties and tens of thousands of communities in the nation, it was not practical to base the IMPLAN system on primary data or to develop unique models for each community or region. Yet in order to make the models accurate and available for all communities, they had to be based on community-specific data. The Forest Service dealt with this difficult situation as follows:

1. First they built a carefully structured conceptual framework.
2. Next they identified and acquired a vast array of relevant secondary data that they used to predict cross-sectional coefficients.
3. They organized the coefficients and the secondary data into a computer model that generated consistent, comparable indicators for counties and regions across the country.
4. They made the model available in a way that allowed users to understand it and encouraged them to update the data and the model frequently.

IMPLAN was an instant success (as were similar modeling systems: the RIMS model, the RSRI model, and the REMI model). But IMPLAN became popular among applied economists at land grant universities because of a small investment by the USDA Extension Service and the four regional Rural Development Centers and because of the willingness of the Forest Service to make its new model available.

In the mid 1980s the Rural Development Centers and the Extension Service funded a small project to explore the feasibility of making IMPLAN available to rural development researchers at land grant universities. An agreement was struck with the Forest Service, and an IMPLAN training session was held in Fort Collins in 1986.

A series of introductory and advanced training sessions followed, and researchers started to apply the models in communities in their state and region. The relationship between the researchers and the Forest Service quickly became bilateral—researchers questioned data and assumptions, made suggestions, and demanded changes. To accommodate the increased demand, the IMPLAN model and data system was privatized and is currently sold by Minnesota IMPLAN Group (MIG). Today, regular IMPLAN training sessions are held, biannual IMPLAN user conferences are convened, and hundreds of papers are written each year. IMPLAN data are used for various purposes in addition to impact analysis. IMPLAN data are used to generate detailed (if approximate) economic profiles for counties and regions, IMPLAN serves as the basis for computable general equilibrium models and is incorporated into simulation models. The availability of IMPLAN has influenced decisions involving millions of dollars of public and private funds; it has influenced the location of industries, the availability of thousands of jobs, and the future of hundreds of communities. The availability of IMPLAN has also fostered a great deal of

structural economic research of a general nature as well as research focused on particular places and issues.

Some of these impacts would have occurred without the investment by the regional Rural Development Centers and the Extension Service, but much of it may not have occurred for many years. The investment made at that time has leveraged state, local, and private sector funds a hundredfold.

For many years regional and rural analysts have built local models to extend the capabilities of input-output models. These models precede the release of IMPLAN. The earliest of these models typically focused on a particular community or region and were developed for a particular purpose—such as the impacts of coal mining, hydroelectricity, residential development, or some other issue. Like regional input-output models, these regional models were usually expensive enough that only larger and richer communities could afford them. But also like input-output, the researchers have developed procedures for estimating more general models based on secondary data.

In November 1984 a number of researchers met in Asilomar, California to discuss the needs in this area of analysis. This group identified the following needs to advance the application of local-scale modeling systems:

1. Standards for economic and fiscal impact analysis,
2. Desirable features of economic and fiscal impact models,
3. Materials designed to better inform clients about desirable features in impact analysis, and
4. Procedures for researchers to exchange best practices and to avoid reinventing the wheel in impact assessment.

Following that meeting, the Western Rural Development Center funded a small project to develop a framework outlining the basic dimensions of impact models and to create a comprehensive catalog of local fiscal impact models. The framework and catalog were produced in 1986 (Halstead and Johnson 1986; Halstead, Leistriz, and Johnson 1991). The paper identified five dimensions or characteristics of all impact models—temporal, spatial, sectoral, public service, and model building. More than 20 models were identified and classified according to the five dimensions.

Over the last decade the opportunity and need for accurate and timely information at the local level has broadened and deepened. Advance technologies have increased the availability of data and information but not the capacity to use it and convert it into learning. Considerable research has occurred since 1984 that has increased the ability to address these needs of communities. Fifteen years after the Asilomar conference its goals are unmet, but a process is underway that could bring them to fruition.

A core group of applied rural researchers has continued to pursue the goals of Asilomar. A USDA regional research project, called NE162 (Northeast

Regional Research Project number 162), has met annually for many years. One of its objectives is to develop and use impact models for analysis of rural issues.

In addition, the regional Rural Development Centers and the Rural Policy Research Institute (RUPRI) have supported many of these same rural researchers. Since 1995 RUPRI has promoted the idea of a multistate, interdisciplinary research and outreach network, called the *Community Policy Analysis Network* (CPAN). The network's goals are to improve policy outcomes and the governance of communities, especially rural communities. A brief history of the network's activities is outlined in Table 1.

Table 1. A brief history of CPAN activities

Date	Location	Activity summary
April 1995	San Antonio	RUPRI invites 15 scientists to discuss the potential of developing an integrated method for assessing policy impacts at the community level. Follow up recommended
September 1995	Kansas City	More rural and regional scientists are consulted. The group plans a national invitational conference
June 1996	Madison	Forty scientists attend a two-day conference, sponsored by RUPRI and the Regional Rural Development Centers. Organizers are asked to develop and test minimal data and research standards
January 1997	Portland	Organizers meet with a small group of researchers to review minimal standards
April 1997	Reno	Scientists in four western states receive data and research support needed to build labor market models
November 1997	Kansas City	Twenty scientists meet for a two-day conference to discuss future research, public education, and outreach applications for labor market models
August 1998	Kansas City	RUPRI invites a group of scientists to form a CPAN leadership team that will work to develop the network as a national resource for community policy decision support
November 1998	Santa Fe	Scientists from over 20 states discuss research and application of labor market models for rural communities. The group also explores the potential and future of the RUPRI Community Policy Analysis Network

3. CPAN status report

Today work is underway in several states to develop sophisticated local labor market models and companion fiscal, economic, social, and environmental components. CPAN researchers and educators will achieve their goals by generating and delivering high quality information for community decision-makers and by helping communities develop the capacity to use the information.

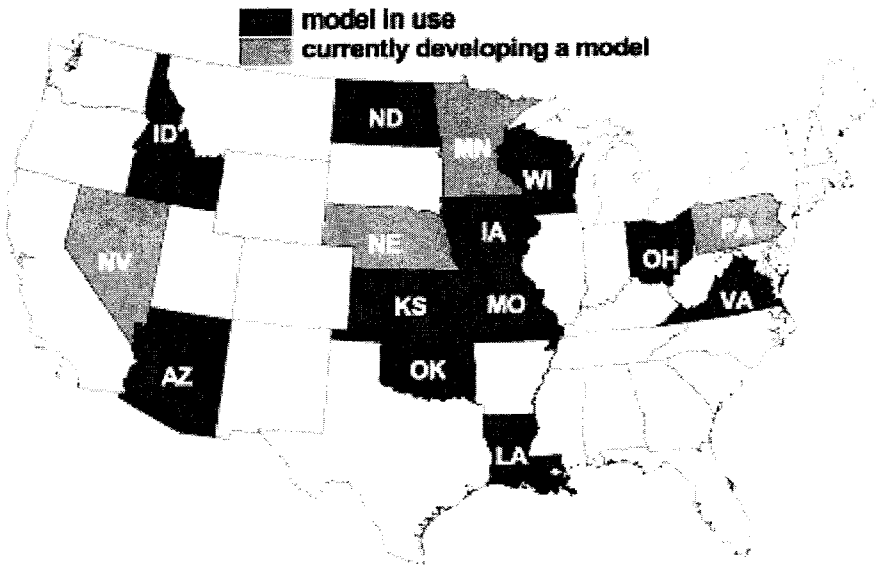
Unlike the experience with IMPLAN, CPAN will be decentralized from the outset. The legal and institutional diversity among states and across communities makes this decentralization unavoidable. But this strategy also has significant benefits. This strategy builds on the experience, expertise, and existing networks of many rural and regional scientists across the country. CPAN will facilitate communication and collaboration among members and will increase the level of research, program development, and financial support for its members.

In May 1998 an informal survey of land grant university scientists who have attended or expressed interest in the community policy analysis network was conducted. Approximately 35 surveys were distributed to scientists representing land grant universities in 30 states. Respondents were asked to describe their work in policy analysis for rural communities, including identifying their primary clients, the range of issues they address, the research methods used, plans for extending their work in the future, and the resources available to support these activities.

According to this survey, scientists at over 30 land grant universities have participated in varying degrees in CPAN-related activities. Respondents indicated they worked with a wide variety of client groups. Almost all said that local governments were important clients, but state governments, federal agencies, not-for-profits, citizen groups, and private firms were also cited. The range of issues and research questions was even broader, including assessing the impacts of industrial locations, closings, public facilities such as prisons and roads, tourism, land use planning, taxation issues, and industrial targeting.

Currently, scientists in 15 states have or are building labor market models (Figure 1). Six more states expressed interest or intent to develop similar models. Most respondents used an input-output model as a part of their local economic impact analyses and almost all of these used IMPLAN. Some used computable general equilibrium models as well. Other community level analysis tools used by respondents included trade area analysis, industrial targeting programs, business retention and expansion surveys, benefit-cost analysis, social accounting matrices, and geographic information systems. Almost 90 percent of respondents felt that the demand for these community level studies would increase in the near future, while none thought that they would decline.

Table 2 summarizes survey results on the human and financial resources committed to community policy analysis. In the 15 states using local labor market models, almost 50 FTEs are currently supporting related research and outreach programs. In the same states, over \$500,000 in financial support and \$420,000 in in-kind support have been allocated to the development and application of these models. These funds come from a variety of sources, but much of the money to date is allocated by host institutions. A total of 23 states reported some commitment of resources to community policy analysis program-

Figure 1. Status of labor market models in CPAN states

ming. In all, over 70 FTEs, including approximately 28 faculty FTEs are devoted to this work, with over \$1 million in real or in-kind financial support. The survey results show there is a great deal of activity in the area of local policy modeling and outreach. We expect that at least 20 states will soon have community modeling research and outreach programs in place.

4. Next steps

RUPRI's CPAN initiative now faces two main challenges. First, we must mobilize the existing interest and commitment to community level analysis. Second, we must support participating scientists in a way that builds scientific capacity for all participants and improves the outcomes of policy decisions for rural communities across the network. In this section, we outline how RUPRI plans to address these challenges. In general terms, we describe the functions CPAN will fulfill for participating scientists and the organizational form proposed to perform those functions.

The first and most important step toward building CPAN as a national infrastructure is to agree to a series of scientific standards. This includes identifying standards for the theories, methods, and data required to build key modeling tools as well as identifying standard methods for policy scenario development. Initial steps toward these goals were taken at the 1998 meetings of

Table 2. Current resources devoted to rural community policy analysis

Type of resource	All community policy analysis		States with labor market models now in use	
	Number of states	Total resources	Number of states	Total resources
Total human resources	23	72.3	15	48.4
FTE faculty	22	27.9	15	16.8
FTE research/outreach associates	15	18.8	10	14.2
FTE professional staff	5	5.8	3	3.8
FTE graduate students	13	19.7	9	13.7
FTE other	1	.2	0	0
Financial support	7	\$ 595,000	5	\$ 505,000
In-kind support	11	\$ 432,500	10	\$ 420,000

the Mid-Continent Regional Science Association. At these meetings papers were presented that compared the structure and application of models from three different states—Missouri, Iowa, and Wisconsin. The comparison highlighted differences in model systems, in the states and communities studied, and in approach to analysis. Future research projects pursued by the network will build on these results.

The process of developing standards and improving the conceptual and empirical bases of the model needs to continue as CPAN simultaneously pursues several objectives:

1. Advancement in the theoretical underpinnings of the models,
2. Refinement of data and estimation procedures,
3. Introduction of additional indicators to the models,
4. Refinement of outreach activities,
5. Transfer of best practices among active network members,
6. Recruitment and training of new network members, and
7. Development of an approach to identify representative communities around the nation.

At the same time, the network itself must develop operating procedures and structure.

5. Network functions

To be successful, the CPAN initiative must address the analytic and educational needs of rural communities in the U.S. and also reflect the realities faced by social scientists committed to rural community policy analysis. CPAN as an organization must perform several key functions.

5.1. Learning

First and foremost, CPAN must be a learning organization (Johnson 1998). “A learning organization continually increases its capacity to design and bring forth the future it wants in a rapidly changing world (Senge 1990).” Organizations learn as a way of dealing with change. The more rapid the rate of change, the more important organizational learning becomes. Members of a learning organization learn individually but also “interact on an on-going basis and collectively reflect on the results of their action (Eppel and Conklin, undated).” A learning organization is composed of individuals committed to increasing their personal and their organization’s knowledge base. CPAN will function as a learning organization if it develops the following additional characteristics and functions.

5.2 Communication

CPAN should facilitate and foster communication among its members. This can be accomplished in a number of ways including periodic conferences, videoconferences, telephone conferences, a web page, etc. In each case the process must communicate accurate and valuable information.

5.3 Research support

The network will foster collaborative research on the fundamentals of the models. This collaboration will seek to enhance the quality of predictions, as well as the breadth of indicators estimated by the models. RUPRI will seek to facilitate the generation of financial support for this research.

Initially, one of the most important activities under research support will be the development of a set of standards for the labor market models, including model composition, data, and model outputs. The need for such standards was noted at the Asilomar conference and has been acknowledged by network participants regularly. These standards will enhance confidence among the network’s customers and increase the competitiveness of members in the growing market place for local policy analysis tools.

5.4 Training and certification

The standards established by the CPAN will be most effective if coupled with training and certification of new network participants. Training will facilitate the construction of new models, development of meaningful scenarios, and accurate interpretation of results. Together, the combination of standards and certification should assure the integrity of the network and its products.

5.5 Program development

The network will facilitate the development of multistate outreach and policy analysis programs. Such multistate programs will reduce the development and delivery costs of these programs and should encourage the sharing of best practices among states. Multistate programming is underway in the area of health sector analysis and is being planned in welfare reform. Other potential areas include rural housing, economic development incentives, equity financing, and land use regulation.

5.6 Policy interface

The primary demand for these models is to serve the policy information needs of communities and state governments. RUPRI's involvement provides an interface for network members within a broader policy arena. RUPRI will increasingly incorporate community level analyses into its federal and multistate policy activities. RUPRI currently is sponsoring a multistate health care policy analysis using community level analyses to capture the diversity of experience in rural America. RUPRI will channel financial support to network members that become involved with multistate activities.

6. Network form

CPAN will be a loose, interdisciplinary network of rural researchers and outreach specialists. Teams that might include researchers, outreach specialists, economists, sociologists, planners, public administration specialists, or others will often represent states. Institutions involved will include RUPRI, the regional rural development centers, some state level centers, and national centers and organizations. Figure 2 describes this concept.

State teams will work with one or more communities (defined broadly) to develop advisory bodies, databases, current models for the community, and baseline projections.

6.1 States and localities

The most critical nodes in CPAN will be the participants at the state and local levels. It is at this level that the broad range of research and practical skills needed by the network will be developed and maintained. Each participating state represents unique economic and political histories. The responsibilities and taxing authorities of local governments also vary by state. Assessing the local fiscal impacts of federal or regional policy choices would be extremely difficult

Figure 2. Proposed community policy analysis network organizational form

Network nodes	Key functions
States and localities	<ul style="list-style-type: none"> • Develop and maintain community policy impact modeling tools • Build collaboration between state and local government agencies for network functions • Provide policy decision support for selected communities • Contribute to ongoing research and program development for the network
Regional coordinators	<ul style="list-style-type: none"> • Provide research and program development support for network participants • Foster enhanced communication and training for network participants • Facilitate multistate and regional community policy research projects
RUPRI	<ul style="list-style-type: none"> • Facilitate national communication and collaboration for network participants • Assist in building funding base and institutional support for network activities • Build and maintain the interface between network participants and policy decision makers

without the knowledge and experience of scientists in each participating state and without the intrastate networks between scientists, state agencies, and particular communities.

At the same time, most of the benefits realized by CPAN will accrue to participants at the state and local level. State governments will increase their capacity to assess the impacts of policy decisions on rural communities. State governments will also increase their capacity to pass responsibility for more decisions to local authorities and to hold them more accountable for results. Scientists participating at the state level will gain opportunities to learn from colleagues and to extend and expand their applied research.

For these reasons, much or all of the funding for in-state activities of network participants will come from state sources. Many may assume that it is impossible to secure adequate resources to sustain CPAN's program of work from state and local sources. Our recent survey revealed that a total of almost \$1 million in real and in-kind support has already been secured in 13 states. With assistance from regional and national partners, we believe more funding can be secured in each of the interested states. Network participants will be encouraged and given assistance to gain in-state partnerships with state agencies, local governments, not-for-profits, and private firms.

The community policy analysis teams from each state will build and maintain the models and other community decision tools required by the network.

Because the models will evolve over time to include various demographic, social, health, quality of life indicators, and predictive equations, many state teams will be interdisciplinary. Almost all teams will include researchers and outreach specialists.

In order to obtain a representative cross section of rural communities for comparative policy analysis, each participating state should establish at least two representative communities. For each community there will be a current baseline and model. RUPRI periodically will invite state teams to nominate communities for regional or national policy analyses. RUPRI will absorb the costs of the participating state teams who will, in return, collaborate to develop scenarios, run them through their models, and write reports.

When and if state teams respond to invitations to participate, their communities (local governments or local NGOs) will take part in the scenario analysis by updating baselines and by providing any special data necessary. In return, the community has access to the results of comparative analysis and will receive possible benefits from being involved in the regional or national process. In addition, the community will have the benefits of the up-to-date models and baselines.

6.2 Regional coordinators

Regional representation is critical to the success of CPAN. States in a region often share similar economic and policy issues, similar population density and spatial settlement patterns, similar political cultures, and similar institutional and constitutional arrangements between state and local governments. Currently, each of the four U.S. regions has at least four states participating. As CPAN develops, regional nodes can help coordinate research and program activities of participating states. At the national level, rural communities are diverse. They face a wide range of economic and policy concerns, and the responsibilities, authority and technical capacity of local governments vary significantly from east to west and north to south. Regional coordination will help make rural diversity more manageable.

Regional cooperation can also help land grant universities involved in the network build their own strengths and avoid unnecessary duplication of research and outreach programming. For several years the Regional Rural Development Centers have provided continuing support for scientists interested in community policy analysis. The centers can continue to play strong roles. Other possible regional partners include regional directors of experiment stations, regional research projects, such as NE 162, and regional directors of cooperative extension.

6.3 RUPRI

RUPRI's role in the network will be to provide an opportunity for policy research and assist outreach scientists to collaborate more easily. RUPRI will facilitate collaboration by coordinating activities, creating new channels of communication, financing some activities, attracting other funding, and by supporting the standardization of products.

RUPRI will serve as the coordination and communication center of the network. It will maintain a page on its web site to announce and report CPAN activities and will provide various opportunities for communication such as telephone conferences, videoconferences, electronic mailing lists, chat-rooms, and periodic national and regional meetings.

RUPRI will also provide state teams and regional coordinators opportunities to interact with regional and national policy makers and processes. RUPRI-sponsored comparative policy analyses will generate national publications and policy briefings for federal policy decision-makers in both the legislative and executive branches of government.

The network itself will create new opportunities for community analysts to collaborate on research projects and to share outreach programming. RUPRI will encourage the development of standards—standard indicators, standard conceptual foundations, and standard scenarios—in order to promote the products of network participants. It will also suggest that network participants consider developing a certification program for members to ensure the quality of its products.

RUPRI will issue periodic requests for proposals from network participants related to current and anticipated policy issues. Network members can nominate one or more of their communities to represent various community types in the comparative policy analysis. RUPRI will create issue teams from the nominations and fund comparative analyses. In other cases, RUPRI will facilitate and endorse joint grant proposals to third party funding sources.

7. Network products

The Community Policy Analysis Network is a loose, voluntary collaboration of community research and outreach scientists. The primary relationships will be within the state. Teams will work with state and local governments generating locally demanded decision support products. Given the diversity of situations in each of the states and the differential emphases of state systems, the in-state products will vary considerably. The ultimate result of in-state activities will be improved community level decisions and increased quality of life for residents.

At the regional and national levels, the products will be carefully articulated scenarios and predictions of standard indicators in communities in each of several states. The ultimate result of regional and national activities will be changes in national policies affecting communities and the exchange of best practices among communities from all parts of the country.

8. Discussion

This paper suggests that emerging political and institutional realities in communities require new forms of community decision-making infrastructure. Communities need tools to help increase accountability, resolve conflicts, expand public participation, and reduce risks surrounding decisions. To satisfy these needs, communities need a toolbox of decision tools including:

- Economic impact models,
- Fiscal impact models,
- Environmental impact models,
- Social impact models,
- Multiple attribute and group decision-making tools,
- Community information systems,
- Community learning and community memory tools,
- Community benchmarks and performance measurement systems,
- Geographic Information Systems.

Communities must have programs in place that permit and encourage:

- Public issues education,
- Community-wide planning,
- Policy decision support,
- Public participation.

After decades of preparing, community policy analysts are poised to make a greater impact on the ability of communities to direct their own futures. The political environment is ripe, technology is adequate, and support is starting to emerge. The next step is for those who will become a part of the network to collaborate in its birth. First we need a consensus that the vision outlined here is needed. Next we must collaboratively make the vision a reality.

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