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THE ROLE OF UNIVERSITIES IN LOCAL ECONOMIC DEVELOPMENT:
THE UNIVERSITY CENTERS PROGRAM CASE STUDY

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This paper is a report on work in progress. It examines one aspect of the role which universities are playing in local economic development. In particular the paper examines the U.S.-government-funded University Centers Program and looks at the role which those centers are playing in using their knowledge resource to assist in local economic development.

During the eighties many universities in the United States included economic development, particularly at the local level, as part of their mission. A survey undertaken in 1986 found that 37 percent of universities and colleges had such a statement in their mission.¹ It has, however, been suggested that such a mission is a reaction by the universities to a declining funding base and consequently part of a search for new funding sources rather than a genuine commitment to economic development.² Whilst this claim may be at least partially true, it does appear that universities have significantly expanded their role in the area of economic development during the last decade.

Universities which have been successful in this new role have matched their capacities with the needs of the local area.³ To date there have been relatively few attempts reported in the literature to evaluate this role.⁴ Other recent research has shown that agglomerations of research and development activities are key factors in a region's competitiveness.⁵ Such agglomerations are sometimes, but not always, associated with the nearby existence of a major research university.

The transfer of technology from the major research universities to private-sector entrepreneurs is a process which has been going on in different forms for many years. Beginning in the 1970s and accelerating in the 1980s, there was in the United States a significant growth in federal and state programs to facilitate not only technology transfer but, more broadly, a transfer of knowledge resources from universities to other sectors of the economy. In other words, it is only in recent years that universities, often with government assistance, have consciously used their broad knowledge base to aid economic development at the local level. A number of government-funded programs supporting this type of activity have been at least partial victims of the budget cutbacks of the late eighties.

Many of the transfers of both technology and knowledge from the university sector to both public-sector agencies and private-sector firms has taken place within programs which have aimed to facilitate the transfer of the technology or knowledge; that is, the programs have been essentially process-oriented. There has been relatively little effort until somewhat recently to attempt to understand the way in which these transfers are affecting economic development, particularly at the local level.

By 1990 Luger and Goldstein had begun this process with the publication of their work on the local impacts of research parks. This work has concentrated specifically at the "high-tech" end of the university knowledge spectrum.⁶ It raises the fundamental question about which aspects of the university knowledge base are best able to assist in local economic development in a particular location. The question is being expressed in this way because it is believed that it would be presumptuous to assume that a formula or model of knowledge transfer could be developed which would be universally applicable.

This paper examines the process from the point of view of those who wish to see university knowledge resources better utilised to aid local economic development. The paper studies the U.S. Department of Commerce, Economic Development Administrations's University Centers Program as a case study.

It is argued in this paper that it is difficult to make any firm judgement about promoting or facilitating local economic development in the absence of any coherent body of theory which guides or even explains local economic development. A profile of the centers is presented, followed by the results of a study of the activities of the university centers and the factors contributing to their success.

The following questions will be addressed in the paper:

- What should be the components of a theory of local economic development?
- What groups of actors are the university centers attempting to influence?
- How should we attempt to measure the success or otherwise of the university centers?
- Here can the university centers be successful facilitating local economic development?

This paper refers to the influence of the university on the local economy and industries which are located in the local area. It is acknowledged that a significant body of university research has an economic impact beyond the local area, and some research findings have a worldwide impact and can influence economic growth in many countries. The local impact is emphasised here because much university knowledge transfer has its immediate impact in the area near the university where the relevant research has been undertaken.⁷ Many research findings which result in commercially viable products or services will develop from a local base. This is certainly the assumption underlying the development of university-based research parks.

Before proceeding, it is necessary to explain the term "local economic development" as it is used in this paper. Two concepts are developed in the literature. The first, which generally goes under the name of "local economic development," most often refers to economic development which occurs at the local level as a result of capital investments or other relevant economic initiatives that are geared to providing more jobs and generating a higher income for some or all residents in the area. Such development is usually thought of and understood in terms of the local manifestation of the broad process of economic development. The analysis of such development is generally undertaken using the terms and tools of regional science.

More recently, Rolzinski has used the term "community economic development."⁸ Blakely, on the other hand, uses the term "local economic development" but defines it in a way that makes it similar to the concept used by Rolzinski.⁹ The focus of their interest is development which is generated from within the local area by a broad range of groups. This approach emphasises the generation of quality jobs which result in community improvement in general.

The question arises here as to which of these two frameworks is more appropriate for the analysis of the role a university can and should be playing in economic development at the local level. More particularly, which framework is better for an analysis of the EDA's University Centers Program? The answer to this question revolves around how the university sees itself in the local community and how the community perceives the university.

A university can be viewed as one of the groups of actors working with other groups on the local level to develop initiatives which will provide the type of development appropriate to the general betterment of the local community. In some situations, this may in fact be the case; certainly many academics and

university administrators would like to see their university cast in this light. The university uses its resources to enhance the capacity of the local community to obtain the type of development which it desires. It could be argued that this is the view of the university presumed in the University Centers Program, or at least the most recent manifestations of it. Recently, the EDA has moved its central focus from centers concentrating on business-support activities towards centers which work with local agencies to assist in economic-capacity-building activities.

Economic-capacity building can be an activity geared towards community economic development. A number of the university centers appear to have close relations with key community groups. The University-Oakland Metropolitan Forum, which is based at the University of California at Berkeley, attempts to operate in this way. On the other hand, economic-capacity building is not inherently geared towards community economic development, and many of the university centers focus on locally based agencies which do not appear to have particularly close grassroot community links.¹⁰

A university need not, however, be viewed as a sympathetic actor working in harmony with other local groups with the aim of generating desirable forms of development at the local level. Because of the recent rapid growth of higher education in many countries, there has been a substantial expansion both in the number of universities and in existing universities. This expansion is often a source of local tension.

Universities are rarely located in industrial areas, and the physical expansion of a university or its peripheral activities such as vehicle-parking are a source of tension. University expansion usually results in a reduction of the amount of residential land, public open space, or commercial or retail land in an area. A reduction in the amount of land available in any of these

categories will generally be viewed both by the local community and, in particular, local community activists as undesirable.

It could be argued that universities may involve themselves in activity at the local level as a "community service" designed, directly or indirectly, to offset the negative effects their growth is having on the local economy. Indeed, as indicated in Table 10 later in this report, more than 50 percent of the center directors surveyed regarded the improvement of the university's image as a very important measure of the success of the center's activities. Some universities do produce and distribute material which is specifically designed to show the substantial economic activity which the presence of the university in the local area generates.¹¹

The faculty of a university will not necessarily live locally and thus will not necessarily have any direct allegiance to the local area. They may, therefore, not fit easily into working with local groups to facilitate community economic development. There will of course be some exceptions to this, most notably "university towns." Even in such towns, academics may have little interest in the town and its development.

Finally, the traditional transfer of technology from the university to local business will in many cases have little to do with community economic development except by coincidence. Technology can be viewed as one of the traditional factors of production in the production process. As such it is generally analysed in a traditional framework.

Whilst it may be desirable to view the university as one of a group of actors working in harmony and sympathy with local groups, this does not usually accord with what is observed. It is concluded, therefore, that the analysis of the role of the university in local economic development, and more particularly an analysis of the University Centers Program, is best undertaken in the rather

more conventional framework which derives from regional theory. It should be noted, however, that the framework for analysis developed below accommodates many of the basic tenets underlying community economic development, and can certainly be adapted to include the concepts underlying community economic development.

This paper describes the University Centers Program and examines some tentative measures of the effectiveness of the Centers. A policy framework which could be used as a basis for determining the effect which the Centers have in influencing local economic development is outlined. Using this framework, there is a brief discussion of the effectiveness of the University Centers Program in facilitating economic development.

University Centers Program

The University Centers Program is a small program established under the Economic Development Act of 1965. In 1990 it was funding centers in approximately 50 universities throughout the United States. Also in 1990, one junior college program was funded for the first time. A total of \$4.7 million was allocated in that year.¹² In 1987, the policy of funding centers at \$100,000 per year for five years and then \$50,000 per year for the next two years was introduced. Funding for a center ceases after seven years, although recent information suggests that this graduation policy may have been abandoned.

Centers are chosen on the basis of submissions made by the university. The following criteria are used in awarding grants.¹³

1. Serve an area of significant economic distress;
2. Address the development needs of the service area;
3. Complement the activities of other organisations in the proposed service area that are engaged in economic and business development;

4. Possess the commitment, as evidenced by financial support and other resources, of the university leadership at the highest levels, to the mission and purpose of the university center;
5. Possess the capacity to provide the proposed technical and other assistance to jurisdictions and organisations within the service area;
6. Complement and support the local, regional, or state economic development strategies in the service area.

The EDA does set specific guidelines for the financial contribution which a university or other local funding sources must provide in each year of the center's operation. At least half of the required matching amount must be in cash.¹⁴

The centers must, as a condition of the funding they receive, report annually on their activities. The EDA does not impose specific actions or activities on the centers. Presumably this is a recognition of the broad range of problems which exist in the areas served by the centers throughout the country. The EDA does require them to set out the criteria which they regard as appropriate for measuring their success. These criteria require approval of the EDA. Information on the criteria was not collected as part of this project. However, as part of this study, the center directors were asked to rate a range of measurement criteria. As an indication of the type of criteria being put forward by the centers, the list submitted by one center is set out below.

1. Jobs created (actual and potential);
2. Jobs saved;
3. Investment generated as a result of technical assistance;
4. Recommendations not to pursue a project because of the lack of economic, fiscal, or programmatic impact;
5. Technical assistance efforts to public and non-profit agencies;
6. Technical assistance resulting in new or displaced worker participation in training or retraining;
7. Technical assistance resulting in technical transfer, innovation, product design, or new production processes;

8. Technical assistance resulting in direct expansion of existing industry, or the location of a new industry having a significant impact;
9. International trade assistance to industry at a local level;
10. Encouragement of faculty and graduate student involvement in applied research and economic development projects;
11. Encouragement of the development of collaborative projects and joint ventures under the auspices of industry-higher education partnerships;
12. Support of the development of new university-initiated businesses;
13. Encouragement of entrepreneurial leadership with community organisations such as Small Business Development Centers (SBDC), Small Business Institute (SBI), and Service Corps of Retired Executives (SCORE);
14. Provision of economic and policy analysis and research for local and state governments.

In many respects, this is not so much a list of performance criteria as it is a list of objectives and activities. It does, however, serve the purpose of demonstrating the way in which at least one university center sees the way its performance should be judged.

The EDA does have specific requirements for the university centers' annual reports. This also yields some insight into the way the EDA officials supervising the program see the desirable outcomes. These include the provision of numerical economic data on the service area, the number of projects undertaken, the number of contacts made, the types of businesses assisted and the type of assistance given, and the actual and projected number of jobs saved and jobs generated. Information of a descriptive nature is also requested.¹⁵

The University Centers Program was chosen as the case study for this study because it has a specific economic development objective. Whilst other programs which fund other aspects of university-to-industry transfer are much larger in terms of funding allocation, and in many cases have a greater capacity

to influence economic development in the area in which they are located, the economic development outcome is secondary to their main stated purpose. Included in this category are programs which stimulate scientific and technological research and the transfer of the outcomes of relevant research to commercial entities.

The University Centers Program was also chosen for study because it demonstrates the principle that universities have at their disposal a knowledge resource which is much broader than science and technology. It is important that all resources which can contribute to desirable development are effectively used. A final reason for choosing this particular program for study is that programs with these types of objectives do not exist in Australia. It was hoped, therefore, to demonstrate that there are aspects of a university's knowledge resource, in addition to science and technology, which can be utilised to aid economic development in a cost-effective way.

A questionnaire and a request for other information was sent to the 50 university centers which were receiving funding from the EDA at the beginning of 1990. Replies and information were received from 31 of the centers. In addition, one other center responded indicating that it was ceasing operation, but no reason was given for this. Collecting information using a questionnaire is often problematical. First, the response rate for mailed surveys is often very low, although it has not been a significant problem in this instance. Second, in order to get a good response, the questionnaire has to be kept simple. It would have been desirable in this instance to collect much more detailed information than has been collected. The level of detail of the information which was collected was such that many conclusions are, of necessity, tentative.

It should be stated at this stage that some of the information received was difficult to analyse because, in a number of instances, the "university center"-funded operations were subsumed in the activities of a larger center funded from a variety of sources. In one instance, the questionnaire was returned indicating that the particular university center was not funded by the EDA. Information supplied by the EDA indicated that it was one of the funded centers. This suggests that some centers are run in such a way that at least some center staff are not aware of the funding sources with which they are working.

Detailed discussions were also held with the directors of four of the centers located in the states of California, New York, Texas, and Massachusetts. It would have been desirable to have discussions with a broader range of center directors and the recipients of the center services, but time and the wide geographic dispersal of the centers prevented this.

The EDA provided access to an evaluation of nine of the university centers undertaken by the Rice Center.¹⁶ This study was commissioned by the EDA and presented to them in 1989. The evaluation was based substantially on detailed information provided by the centers and discussions with center personnel and the recipients of their services. The Rice Center also collected information from 12 centers not funded by the EDA. They used this part of their work to determine what measures a group of successful non-EDA-funded centers used to evaluate their own activities and performance. They report that jobs created or saved and increasing the area's tax base were generally the ultimate goal of these centers.

The focus of the EDA program has changed over time. In the mid-1980s they funded a number of programs which were providing business assistance. In the past couple of years, the EDA has moved out of this field and has left this

particular type of activity to be funded from the Small Business Development Center Program, a program which has substantially greater funding available to it.

The University Centers and their Effectiveness

As indicated above, information on the university centers was obtained from questionnaires. A total of 31 centers returned a completed and usable questionnaire, but only 24 of these provided other detailed information on the operation of the centers. This does, however, constitute a good sample of the 50 centers which were in operation at the beginning of 1990. In addition, detailed interviews were held with four Center directors. This section sets out brief profiles of the centers for which information was available, and some general comments on the effectiveness of the centers are made.

Table 1 indicates the year in which each of the centers was established. Although a number of them have been in operation for more than a decade, the majority are only three to four years old. Although no information was sought in the survey on whether the centers were established as a result of receiving, or in anticipation of, EDA funding, an analysis of the other material provided by the centers indicates that this was substantially the case. Whilst universities should not be criticised for responding to federal government initiatives such as this, the fact that relatively few of the centers were in operation prior to available federal government funding could lead to the conclusion that commitment to the center, or more particularly its mission, may not be as strong as it appears.

In a number of cases, the EDA-funded activities have been added to an existing center within the university. In a significant majority of cases, however, the centers are devoted entirely to fulfilling their EDA-funded remit.

Table 1

YEAR IN WHICH UNIVERSITY CENTERS WERE ESTABLISHED

<u>Year</u>	<u>Number of Centers</u>
1960-69	2
1970-74	0
1975-79	6
1980-84	4
1985	4
1986	2
1987	3
1988	2
1989	8

Source: Survey of University Centers, 1990

The centers are substantially small operations, as would be expected with a program which provides a maximum of \$100,000 per year. The majority of centers worked with a staff of three or less. A number of the centers which had in excess of ten staff were undertaking some additional non-EDA-funded activities. We can conclude from Table 2 that the centers have not been particularly successful in attracting faculty to work on center projects. Almost a third of the centers had no faculty involvement in the center's activities, and more than two-thirds of the centers had two person-years or less involvement in the current year. It should be noted that a number of the centers have used a significant number of faculty for short periods of time, and the way in which the information is presented in Table 2 somewhat distorts the picture of short-term involvement.

The reasons for this lack of involvement are many, and this issue has not been specifically addressed in this paper. The literature on this subject would, however, lead us to the conclusion that the reward system in many universities often does not place a high value on what is sometimes regarded as a community service. Similar comments may be made about student involvement in the centers and their activities.

Detailed information is not presented here, but the faculty involved in the activities of the university centers were from a broad range of backgrounds. The largest group was from business schools. The representation of faculty appears to be substantially in line with the types of activities undertaken by the centers, as set out below.

The level of funding from all sources which is provided for the centers is set out in Table 3. It has been calculated that the centers had a mean budget slightly in excess of \$240,000 in the current financial year. Median budget level was \$194,000. If we assume that the majority of the centers were receiving the maximum of \$100,000 in federal funds, they were, on average, able

Table 2

STAFFING OF THE UNIVERSITY CENTERS

	<u>Number of Person-Years of Involvement *</u>								
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6-10</u>	<u>11-15</u>	<u>16+</u>
Staff employed by Center	0	6	6	6	4	0	2	3	3
Faculty involvement	9	11	6	1	1	1	0	1	0
Graduate student	16	7	3	2	1	0	2	0	0
Undergraduate student	14	12	1	2	1	0	0	0	0

* A person-year of involvement is the equivalent of one person working full time for the center for one year. The number in each cell in this table represents the number of centers in this category.

Source: Survey of University Centers, 1990

Table 3

CURRENT-YEAR UNIVERSITY CENTER BUDGETS*

<u>Amount (\$ 000s)</u>	<u>0</u>	<u>1-10</u>	<u>11-50</u>	<u>51-99</u>	<u>100</u>	<u>101-200</u>	<u>201-500</u>	<u>500+</u>
Source of Funds								
<i>Cash</i>								
Federal Gov't	0	0	7	4	16	1	2	0
State Gov't	12	0	12	4	2	0	1	0
University	15	0	12	1	2	0	1	0
Philanthropic	28	1	1	1	0	0	0	0
Private Sector	21	6	4	0	0	0	0	0
Other	24	1	5	0	0	1	0	0
<i>In Kind</i>								
Federal Gov't	31	0	0	0	0	0	0	0
State Gov't	24	2	3	2	0	0	0	0
University	16	0	8	6	1	0	0	0
Philanthropic	31	0	0	0	0	0	0	0
Private Sector	30	0	1	0	0	0	0	0
Other	28	2	1					
TOTAL	0	0	0	4	1	13	11	1

* the number in each cell represents the number of centers in this category.

Source: Survey of University Centers, 1990

to lever about the same amount from other sources. As indicated in Table 3, the major sources of local funding which the university centers have been able to obtain are from state government and the universities themselves. In both instances, the funds are both cash and "in-kind" contributions, with the university "in-kind" contributions being slightly higher than their cash contributions.

The centers have been less succesful in leveraging funding from non-government sources. Three centers have indicated that they receive funding in excess of the \$100,000 maximum provided by the Federal Government. This is an indication that these centers are receiving funding from more than one federal source. In their reponses to the survey from which this information was obtained, they have either been unable or unwilling to disaggregate the various funding sources.

The clear conclusion to be drawn from this information is that the centers have not been particularly successful in leveraging private-sector funding. In addition to the information presented above, close analysis of annual reports from 24 of the centers reveals little discussion of this. This may be partially explained by such a large proportion of the centers being in the first three years of operation. In these instances, the need to consider their future after the cessation of federal funding is a long way ahead in their time horizon. Discussions with center directors revealed that most considered that it would be difficult, if not impossible, to operate their centers without funding from a public source.

The Project Director at the Cornell University Center, Mike Hattery, indicated that they

hoped that within the seven year time frame of federal funding they would be able to demonstrate that their activities justi-

fied the state legislature taking over the funding of the Center when federal funding ceased.

At the other end of the spectrum, the Director of Technology Business Development at Texas A&M University, Dr Helen Dorsey, said

we are confident that we will become self supporting financially within the 7 year period of federal funding. Indeed the staff of the Center had from time to time discussed the possibility of "spinning off" the Center as a private company

These comments reflect the attitudes of different directors both to public funding and to the future which they see for their Centers.

The centers are not prohibited from charging fees for their services, but they are not permitted to compete with private-sector consultants.¹⁷ It would appear from a review of the broad range of activities of the centers that most of the activities could be undertaken by private consultants if appropriate funding was available. If the centers charge anything below market fees for the services they provide, they could be accused of undercutting private consultants. This requirement of the government could be interpreted as effectively tying the centers into a dependence on public funding sources. Whilst this is not necessarily bad, it does put a strange slant on the notion of "self-sufficiency."

The EDA is encouraging centers to concentrate more on capacity-building. This activity involves projects which concentrate on local government, other economic development agencies, and a range of community-based groups. Services are provided here to many groups which may not be able to pay for the services which they receive. In the case of local government, discussions with a number of center directors have revealed that, in a high proportion of cases, local government would simply stop demanding the service provided if they were charged anywhere near a market price for it. It is not that the service is not needed,

but rather that the local government authority, while recognising the need for a particular service, simply cannot give it a high enough priority within very restricted budgets.

It must be remembered that the centers are located in areas of significant economic distress. Local government, like individuals, may recognise the benefits of investing in the future. However, when struggling to meet day-to-day needs, investing in the future often does not take a high priority. This may appear to be overstating the case, but a county government in one of the service areas was recently within hours of filing for bankruptcy before it was rescued by the state government.¹⁸

Whilst universities at which the centers are based are currently supporting the centers financially, it must be questioned as to whether this support would continue for a significant period of time if federal funding ceased. Although no information on this was collected, the fact that the large majority of centers was established in response to the federal initiative, it is reasonable to conclude that, in the absence of continuing external funding, many centers are unlikely to continue operating for any significant period of time. The only factor which would mitigate against this is if the operation of the center was generating benefits for the university in excess of the costs of operating the center. There appears to have been little work undertaken on the specific benefits to the universities of participating in these activities.

Dr John Sanzone, the Director of the University Center at the California State University, Chico, stated that

senior university administrators saw the benefits of having a University Center as allowing academic staff to be at the forefront of research in a number of areas relevant to the region's problems; as a public relations vehicle for the university; as a mechanism for creating jobs for planning and economic development graduates; and as a "teaching" center for postgraduate and senior undergraduate students.

We are led to the conclusion that, in the majority of cases, the centers will only survive beyond a time when they no longer receive federal funding if they are supported financially by their respective state legislatures.

In order to gain an overview of the activities of the university centers, they have been classified on the basis outlined in Table 4. In this table, the broad thrust of the centers is represented. Because of the vastly different nature of operation of the different centers, it is difficult to give a good representation of the range of their activities. Many have placed considerable emphasis on unique projects.

It is clear from the information presented in Table 4 that the centers have interpreted the EDA guidelines in different ways and are taking a range of approaches to assist with economic development in their respective service areas. Table 5 presents information on the activities nominated by the center directors as the three most important projects in which the center had been involved since it commenced operation. Comment on these activities as they relate to local economic development will be made in a later section.

As an indication of the direction in which center directors would like to see their centers develop, if further funding was available, the priority activities nominated by center directors are set out in Table 6. Comment on the relevance of these to local economic development will be made in a later section.

Tables 7 and 8 present information on the sector in which the current Director was employed immediately prior to taking up his or her appointment as a center director, and the number of years they have been center director, respectively.

A significant proportion of the center directors was previously employed in a university, and although it is not known, it can be relatively safely

Table 4

ACTIVITIES UNDERTAKEN BY THE UNIVERSITY CENTERS

<u>Activity Category</u>	<u>No. of Centers</u>
Substantially Business Assistance	3
Substantially Technical Assistance	2
Substantially Capacity-Building	7
Business or Technical Assistance & Capacity-Building	7
Technology Transfer	1
Business and Technical Assistance	2

Source: Survey of University Centers, 1990

Table 5

MOST IMPORTANT PROJECTS UNDERTAKEN BY THE UNIVERSITY CENTERS
SINCE THEY COMMENCED OPERATION

	<u>Number of Centers Nominating Activity as</u>			<u>Total</u>
	<u>Most</u> <u>Important</u>	<u>2d Most</u> <u>Important</u>	<u>3d Most</u> <u>Important</u>	
Preparation of data base	0	2	3	5
Research	3	4	1	8
Provision of information	0	2	2	4
Provision of assistance	6	5	3	14
Seminars/workshops, etc.	6	6	2	14
Technology transfer	1	1	1	3
Access to capital	2	0	3	5
Incubation	0	1	0	1
Strategy preparation	3	0	1	4
Outreach activities	2	0	1	3
Assisting entrepreneurs	0	0	2	2
Linking Faculty & Business	1	1	0	2
Linking Gov't & Business	2	0	1	3
Other linkages	0	1	1	2
Networking	1	2	1	4
Export Development	1	0	0	1
Other	1	2	1	4

Source: Survey of University Centers, 1990

Table 6

ACTIVITIES WHICH CENTER DIRECTORS WOULD LIKE TO UNDERTAKE
IF MORE FUNDING BECAME AVAILABLE

	<u>Number of Centers</u>
More technical assistance	6
More technology transfer	1
More involvement in strategy planning	4
Data base assistance	2
Training and education projects	4
Trade-related projects	1
Other*	5

* This category combines a number of categories with only one entry each.

Source: Survey of University Centers, 1990

Table 7

AREA IN WHICH THE CENTER DIRECTOR WAS EMPLOYED
IMMEDIATELY PRIOR TO TAKING UP HIS OR HER CURRENT POSITION

	<u>Number</u>
University Faculty	8
University Staff	11
Private Sector	9
Government	2
Other	1

Source: Survey of University Centers, 1990

Table 8

NUMBER OF YEARS THAT THE CURRENT DIRECTOR HAS HELD THAT POSITION

<u>Length of time</u>	<u>Number of Directors</u>
One year or less	9
2 years	7
3 years	6
4 years	2
5 years	3
6 or more years	5

Source: Survey of University Centers, 1990

assumed that the majority of these was employed in the university in which the center is based. There is an unexpectedly high proportion of people in the category of "university staff." It is known from discussions with some center directors that at least some of these are senior university administrators who, in most cases, would have been in academic positions earlier in their careers. Likewise, there are many people from an academic background who have experience in the operation of other university outreach activities. It would appear that some of these are people who have not been successful in obtaining faculty positions.

It will be noted from Table 7 that 16 of the center directors have held their position for two years or less. However, as indicated in Table 1, ten of the centers have been formed in the last two years. There is, however, some indication of significant turnover amongst center directors. This was reinforced by the number of questionnaires which were returned by a person other than the one named on the EDA list of center directors.

Whilst some of these were completing the questionnaire on behalf of the center director, others were new directors. Although new enthusiasm is important, so is stability and experience. This problem is, however, endemic in small organisations such as university centers, which often exist on tenuous year-to-year funding arrangements and provide little job security for their employees. One ameliorating factor at work here is that it is known from discussions with center directors that a number of them are tenured university faculty who have been seconded to the position of center director. In some cases they will have been active in the center's activities before taking up the position of director and will remain active once they relinquish their position. This provides a degree of stability not reflected in the data presented.

As indicated in Table 9, the majority of center directors, regardless of their background, rated this background as important to the operation of the

Table 9

RATING BY CENTER DIRECTORS OF THE IMPORTANCE OF THEIR BACKGROUND
TO THE POSITION THEY HOLD

<u>Area of employment of Director prior to Current Appointment</u>	<u>Rating of importance of this background</u>			
	<u>Very Important</u>	<u>Important</u>	<u>Not Important</u>	<u>Of no Consequence</u>
University Faculty	7	0	1	0
University Staff	4	2	2	4
Private Sector	6	2	1	0
Government	0	1	1	0
Other	0	0	1	0

Source: Survey of University Centers, 1990

center. Whilst this is not unexpected, it does lead to the conclusion that the activities of many centers have been moulded by the directors to fit their interests and experiences. This is only a potential problem if these interests are not in line with the general perception and understanding of the problems which exist in the area. No attempt has been made to collect information on how the center directors were appointed or the criteria for their appointment.

Limited comment will be made here on the data included in Tables 10 and 11. Each table is referred to, as relevant, in the following section. It is clear from the information presented in Table 10 that four measures of the success of the center's activities are regarded as significantly more important than the others presented. These are the ability to capacity-build amongst local institutions; improvement in productivity; the number of jobs created; and information provided to groups or individuals.

The director of the university center at Chico State University, Dr. John Sanzone, believes that "economic capacity building in the local area is the appropriate medium term strategy to pursue."

The factors most likely to lead to the success of the center were identified as the commitment of the chancellor of the university; an understanding of the problems of the area by the staff of the center; and the certainty of funding being available for a known period. Over half of those surveyed regarded the applied or practical nature of research as being very important, but none of the centers included this as one of the three most important factors leading to the success of the center.

Those factors in the list of factors which are indicative of the centers' close contact with the university (for example, research output and commitment of faculty) did not rate highly. The impression left is that, apart from the

Table 10

RATING BY CENTER DIRECTORS OF THE IMPORTANCE OF ALTERNATIVE INDICATORS
OF THE SUCCESS OF THEIR CENTER

	<u>Very</u> <u>Impor-</u> <u>tant</u>	<u>Impor-</u> <u>tant</u>	<u>Not</u> <u>Impor-</u> <u>tant</u>	<u>Of no</u> <u>Conse-</u> <u>quence</u>	<u>Most</u> <u>Impor-</u> <u>tant</u>
The number of jobs created in the area in a three-year period	8	12	6	4	7
The number of jobs created in the area in a ten-year period	11	14	3	3	4
Number of new firms attracted from outside the area	2	12	11	5	1
Number of new firms created in the area	11	10	6	3	0
Increased inter-firm trade within the area	5	16	6	3	5
The number of "high-tech" jobs created in the area in ten years	6	11	11	3	4
Increased jobs in the area for the university's graduates	9	11	5	6	1
Improvement of the university's image in the area	17	12	2	0	3
Increasing the export capacity of firms in the area	14	11	3	2	5
Transferring technology from the university to firms in the area	12	14	2	2	5
Amount of information provided to assist firms or others in area	22	8	1	0	7
"Capacity-building" amongst relevant local institutions	17	10	2	1	12
Disseminating information on new technology to firms in the area	10	15	2	3	5
Funds raised for university research	6	11	9	4	3
Productivity improvement by firms in the area	14	10	4	3	10
Other	10	1	0	0	10

Source: Survey of University Centers, 1990

*In addition to being asked to rate each of a number of possible factors, center directors were asked to nominate which of the factors they regarded as the three most important. The figures in the final column of this Table represent the number of center directors who regarded a particular factor as one of the three most important factors.

Table 11

RATING OF FACTORS CONTRIBUTING TO THE SUCCESS OF THE CENTER OPERATIONS

	<u>Very</u> <u>Impor-</u> <u>tant</u>	<u>Impor-</u> <u>tant</u>	<u>Not</u> <u>Impor-</u> <u>tant</u>	<u>Of no</u> <u>Conse-</u> <u>quence</u>	<u>Most</u> <u>Impor-</u> <u>tant</u>
University research output in the area of science and engineering	7	7	12	4	2
University research output in the area of business	6	13	9	2	0
University research output in other areas	4	15	9	2	0
The applied or practical nature of the research output of the university	18	9	2	1	1
The capacity of Centre staff to undertake relevant research	16	7	5	2	5
The commitment of the Chancellor or President of the university	17	11	2	1	10
The commitment of key senior Faculty	16	11	1	2	2
The commitment of junior Faculty	9	13	6	2	0
The commitment of key private-sector firms in the area	12	10	7	1	1
The commitment of key elected representatives and officials	13	14	2	2	5
The commitment of key State or local government managers	16	10	3	2	2
A strong tradition of industry/university co-operation in the area	11	12	5	2	4
The certainty of funding being available for a known period	18	11	1	0	12
The seriousness of economic problems in the area	18	10	2	1	7
A good understanding by Center staff of the area's problems and needs	25	5	1	0	14
University alumni employed in key decisionmaking positions in the area	0	12	12	6	0
A recognition by key decisionmakers that a co-operative approach to the area's economic problems is needed	20	9	1	1	3
A recognition by key decisionmakers that the area's economic problems must be tackled from within the area	20	6	3	1	4
Continuity in staffing in the Center	14	14	3	0	4
Initially choosing projects or programs which Centre staff considered readily achievable	10	18	1	1	5
Maintaining strong academic integrity in all work undertaken by or through the Center	20	9	0	1	4

Source: Survey of University Centers, 1990

*In addition to being asked to rate each of a number of possible factors, center directors were asked to nominate which of the factors they regarded as the three most important. The figures in the final column of this Table represent the number of center directors who regarded a particular factor as one of the three most important factors.

strong commitment of the university president, other linkages with the university are not particularly important to the success of the centers.

Towards a Theory of Local Economic Development

In this section, there is a brief discussion of the existing theory of local economic development. This theory is then used as a basis for developing a policy framework for evaluating the contribution of the University Centers to local economic development.

Blakely has developed the basis of a theory of local economic development.¹⁹ In doing so, he has highlighted the fact that local economic development practitioners have for two decades been implementing policies designed to foster economic development at the local level, but have been doing so in a theoretical vacuum. They have been developing and implementing policies which have often had clear and specific objectives such as creating new jobs, broadening the export base of the local economy, attracting high technology economic development, and so on. Each of these are laudible and in most cases useful objectives. Alternatively, the policies have been based on one or more sets of the current conventional wisdoms; for example, the significant role which small firms are claimed to be playing in job-generation.²⁰

It should be asked whether there can be a theory of local economic development. It could be argued that the development of an economic theory at such a micro-level of operation is difficult, if not impossible. At this level, events are very much open to the influence of the decisions of one or a few key decisionmakers. These decisions can have profound effects at the micro-level, and any attempt to develop a general economic based theory may not be successful.

Both Blakely and Teitz, among others, have addressed the need for a stronger conceptual basis for local economic development initiatives.²¹ Blakely

has developed a tentative synthesis of existing economic and regional development theory to provide the basis of a theory of community-based economic development. Teitz uses the term "neighbourhood" to denote the local area he is examining, and he concludes that the neighbourhood is essentially a political and social entity and not a specific and readily definable economic entity.²² He discusses the mechanisms through which the neighbourhood is linked to the regional economy.

If the local area is not a readily definable economic entity, should policy initiatives aimed at this level be discontinued? This does not necessarily follow, and it is argued here that the political and economic imperatives are such that policy initiatives directed at the local economy are likely to continue. In this case, it is preferable to develop and use theoretical constructs to aid the better development and targetting of those initiatives.

No attempt is made here to develop or synthesise a comprehensive theory of local economic development. For the reasons mentioned above, it is recognised that it may be inappropriate to attempt such a task. Alternatively, six groups of theory considered relevant to local economic development are briefly outlined. From these, a set of questions or guide points are developed as the basis of a policy framework. This classification is an attempt to cover aspects of the background to and process of economic development as it is manifested at the local level. It is argued that, given some of the relevant, competing, and sometimes contradictory theories, this is the best that can be achieved. These questions are tentative and at this stage are not comprehensive. Although this framework has been developed with the University Centers Program in mind, it could be applied more widely in the area of local economic development.

It is not suggested here that the six groups of theory which are outlined below are the only ones relevant to local economic development. As indicated

above, Teitz argues that, when examining a spatial area as small as a neighbourhood, the social dimensions of such a unit are likely at least as relevant to a detailed understanding of such a unit. No attempt is made here to address the social, political, or indeed cultural aspects of the local area or neighbourhood.

The six groups of theory which are outlined below each have a significant body of literature associated with them. No attempt is made to provide a review of all the relevant literature. It should also be made clear that the categorisation of the groups of theories set out below is somewhat arbitrary, and there is some overlap, to the extent that some theoretical work could readily be included under more than one heading. This particular categorisation has been adopted for reasons of clarity and convenience.

When a particular policy initiative is under consideration, it should be subject to the questions posed under each of the six headings outlined below. In many cases the questions posed will not all be relevant to a particular policy initiative. However, it is suggested that the initiative be subject to the scrutiny of all questions so that the full range of possible impacts by and implications of the initiative's introduction may be identified. In addition, it is necessary to ask what other complementary actions or initiatives may be desirable or necessary for the success of the particular initiative under consideration.

It is not being suggested here that this is an objective evaluation process that will result in a definitive assessment of the full range of impacts of such a proposal. Similarly, it will not provide an answer to the question of whether or not the initiative should be undertaken or whether it is better or worse than some alternative policy initiative. At best, this framework provides the basis for identifying the range of impacts of a particular policy initiative.

In proposing this framework, it is not being suggested that it replaces a formal strategic planning process, but rather it is an evaluative framework which could form part of it. It is recognised that the framework is simplistic, and that all the relevant theoretical literature has not been cited.

The six groups of relevant theory address the following aspects of the local economic development process:

- (1) The preconditions or foundations necessary for economic development to occur

This notion is based on attempting to ensure that the local institutional and human resource environment is conducive to desired and appropriate local development. It is also important that the locational advantages of the area be analysed and understood.

Some of the recent work on the locational characteristics of high-tech industry has focused on attempting to understand why some areas can become the seedbed for new technology-based development.²³ However, these approaches to understanding the location of much of the sunrise industry are not universally accepted. If the seedbed characteristics can be identified locally, policies may possibly be developed to enhance these. Alternatively, it may be possible to develop policies to replicate seedbed characteristics identified in other areas. Whether these are sufficient conditions for development to occur must be called into question. A number of seedbed activities, such as research parks and incubators, were identified during the 1980s, but attempts to replicate these have not always met with success.²⁴ Some work in this area attempts to relate the number of entrepreneurs in an area and the degree to which entrepreneurial networks are developed to rates of growth.²⁵ In some cases, entrepreneurs are identified and attempts made to pass on their skills to others.²⁶

There does not appear to be a unique group of attributes associated with the location of industry based on the new technologies. There is, however, an emerging agreement that the development side of these new industries has agglomeration tendencies, and the production of the new products is much more dispersed spatially.²⁷

One further locational characteristic of much of this new industry is that it is less likely to be found in the old industrial regions -- or, if it is, it is likely to be located on the periphery of those cities in the newly developed areas rather than in the older industrial parts of those cities. Scott and Storper have developed local labour market and "politics of place" explanations of this.²⁸

Blakely has listed the types of institutions at the local level whose activities and capacities will have an impact on local economic development.²⁹ Also of relevance is the relationship between individuals or groups who make investment decisions which result in development and the political and economic structures or institutions forming the framework within which those

decisions are made. Recent work by Healey and Barrett reviews theoretical and empirical research in this area.³⁰ They develop a research agenda based on a two-way interrelationship between the actors in the process and the structures within which they work.

Capacity-building activities include enhancing the capacity of local economic institutions to accommodate development, and developing new economic institutions which can facilitate the type of development appropriate to the needs of the local community.

Some of the questions arising from this theoretical context which should be applied to any local development activity, including the economic development activities of a university, are as follows:

- (a) On which aspects of the local economic, social, physical, cultural, and environmental infrastructure will the initiative have a significant impact?
 - (b) Will this impact on the local infrastructure have a positive and desirable effect on local development?
 - (c) In what ways will this have a positive and desirable impact?
 - (d) Does the initiative have the potential to assist local entrepreneurs or others who make investment decisions?
 - (e) In what ways does it provide this assistance?
 - (f) Does the initiative help develop the local area as a "seedbed for creativity" in other ways?
 - (g) How does it do this?
 - (h) Will the local labour market be able to accommodate the changes which may occur as a result of the initiative?
 - (i) Will the changes which occur as a result of the initiative be politically acceptable both within and outside formal local political institutions?
- (2) Factors exogenous to the local economy which affect the local community's ability to influence these pre-conditions

There are a significant number of foundations or preconditions for growth over which the local community has little or no control. These include the landscape, weather, and so on. More important, however, are factors such as the increasingly centralised -- indeed, global nature of -- the capital market and the actions of large multinational corporations. It would also appear that, while the production activities of many multinational corporations are well dispersed, the key decisions are becoming increasingly centralised. Much of the discussion of community-based economic development does not directly address these factors. Indeed, the notion of community-based economic development has to a large extent been developed as a result of a recognition that some areas are less likely to be a location favoured

by the key decisionmakers in large corporations, and that economic restructuring is detrimentally affecting that area.

Some of the questions arising from this theoretical context which should be applied to any local development activity including the economic development activities of a university are as follows:

- (a) What factors or decisions exogenous to the local area are relevant to the initiative?
- (b) In what ways may factors or decisions exogenous to the area have an impact on the success of the initiative?

(3) The range of events which provide the initial catalyst for growth

Perhaps the least-developed and understood question in discussions of development at the local level, both theoretical and empirical, is what initial catalysts lead to development in a particular area, and how these may be developed or facilitated. It would seem clear that the actions of people with an entrepreneurial flair is an important ingredient. It is not clear, however, how this entrepreneurial flair develops and what other conditions are necessary. As indicated in (1) above, some groups involved in promoting and facilitating development at the local level do attempt to identify local entrepreneurs and to see whether their skills and wisdom can be passed on to the others. The development of a particular technology and its transfer to a commercial environment could be a catalyst for development.

Some of the questions arising from this theoretical context which should be applied to any local development activity, including the economic development activities of a university, are as follows:

- (a) Does the initiative under consideration have the potential to be or trigger an initial catalyst for development?
- (b) In what way or ways will this catalytic development manifest itself?

(4) The primary and secondary impacts of the growth process

Any increase in economic activity in an area will have an impact on the area, and these impacts will be monitored through a set of measures or indicators.³¹ Direct impacts will include the following:

- number of jobs
- level of investment
- level of sales
- number of firms
- expenditure on research and development
- gains in productivity
- expansion of the area's exports
- expansion of the economic base of the area

There will also be indirect effects on the economic structure of the area. These effects will include:

- industrial structure of the area
- wage structure of the area
- unemployment rates
- occupational structure of the labour force
- labour force characteristics
- growth in output of the local economy
- changes in land use patterns
- net immigration to the area

The impact of any initiative to promote development of each of these should be identified and understood.

Some of the questions arising from this theoretical context which should be applied to any local development activity, including the economic development activities of a university, are as follows:

- (a) What are the direct and indirect impacts of the initiative in each of the areas listed above?
 - (b) Are these likely to be desirable or undesirable impacts from the point of view of the local community?
- (5) The mechanisms through which economic development transmits and diffuses through the economy

In their analysis of the impacts of research parks on regional development, Luger and Goldstein have collapsed the traditional theories of regional development into two groups.³² The group dealing with an area's "seedbed" or creativity capacity has been discussed under (1), above. The second group of theories deal with the way the growth diffuses through the economic system, either locally or more broadly. Using Pred's work, they categorise the diffusion theories into three groups: (1) growth pole/growth center; (2) hierarchical diffusion; and (3) non-hierarchical diffusion. Luger and Goldstein discuss the relevance of each of these to research park-related local development. They show that the projected effect on regional development resulting from the location of a research park will differ depending on which theoretical model is applied to the situation. Their analysis highlights the difficulty facing policymakers who are confronted by a number of theoretical bases which may have contradictory outcomes.

Diffusion is observed through one of two groups of mechanisms. The first of these is linkages, either forwards to users of the products which are developed or backwards to suppliers of components. Diffusion may also be observed through more indirect mechanisms such as agglomeration or urbanisation economies.

The questions arising from this theoretical context which should be applied to any local development activity, including the economic development activities of a university, are as follows:

- (a) If the initiative may result in the production of a product or service, are the inputs available locally?

- (b) If the inputs required are not available locally, is the local environment such that these may be provided locally at some stage in the future, if demand warrants?
- (c) Will the product or service produced be exported from the area in significant quantities?
- (d) If the product or service is sold locally, is it an input in another production process, the end product of which will be exported from the area?

(6) The processes of growth

The theoretical literature on regional growth has developed over most of this century. There are a number of growth models which have been accepted as the conventional wisdom at different stages. It is not intended to detail these here. However, it does seem to be generally accepted that for an area to develop and grow it must produce products (or services) for which there is a market at the national or international level.³³

One question arising from this theoretical context which should be applied to any local development activity, including the economic development activities of a university, is whether the initiative has the potential to assist in the development or marketing of a product or service for export outside the area.

The Impact of the University Centers on Local Economic Development

It is not possible in this section to apply the policy framework developed above to every activity undertaken by the university centers. The approach here is to take the major questions outlined in the policy framework and to determine the extent to which the main questions are addressed or taken into account in the actions and views of the university centers. The actions and views analysed are those represented in the reports and other material available from the centers and the survey which was conducted. Whilst this approach allows tentative conclusions to be drawn about the University Centers Program as a whole, it does not permit the activities of individual centers to be evaluated.

A number of centers, for example, have as the major part of their activities the provision of advice upon request. It is suggested here that although this may be an important function, it is difficult to see this activity as important within the framework which is developed above. Unless the university

centers "filter" these requests for advice and assistance and give priority to those firms which have the potential for generating development (for example, by having export potential), their full economic development potential is not being realised.

Before proceeding, some general comments are made on the view of the economic development role of the centers both explicit and implicit in the way in which the EDA has set out and administered the program and in the Rice Center evaluation of the program.

The criteria used by the EDA in choosing which centers to fund give no clear indication of the way in which they see the operations of the centers, nor is the EDA's view of what constitutes economic development or what are considered appropriate economic development activities made clear. In the reporting requirements set down for the centers, the EDA states:

centers are expected to foster economic development, . . . contribute to the economic well being of their service area reflected in new investment, the preservation of existing and the creation of new -- primarily private sector -- jobs, improved productivity, and other measures, . . . programs of assistance to the economic and institutional needs of the areas they serve . . . establish and carry out programs which are catalytic . . . resources of the university are employed to the greatest advantage.³⁴

Whilst the passage quoted above mentions "economic institutions" and "catalytic programs," in each case these are terms which are used in relative isolation and do not engender a sense of a theoretical understanding of economic development. Here they are referring to catalytic programs, not catalytic events which might trigger the development process. The measures of job generation and productivity improvement mentioned in this passage leave the impression of a relatively unsophisticated notion of the possible outcomes of the provided development assistance.

It is implied in the policy framework developed above that, whilst job generation may be a part of the process, there are activities which will often need to precede this. In many cases it will be difficult to directly attribute the job generation which does occur to the initiatives which have been undertaken. In addition, other development activity will follow the initial part of the process as the growth diffuses its way through the local economy. One initiative, for example, may generate a significant number of jobs, but the linkages, etc., are such that no further jobs are created in the local economy. Another initiative may generate only a small number of jobs, or even no jobs, in the short term, but through linkages to other parts of the local economy may generate longer-term benefits which outweigh the immediate and more obvious job-generation benefits mentioned.

In the specific reporting requirements, each center is required to prepare an assessment of its accomplishments, but no more specific guidelines are given. Whilst these comments may seem to be critical of the approach of the EDA, this is not what is intended. The way in which the EDA has formulated its guidelines gives considerable latitude to the centers to develop innovative programs which appropriately address the needs of the service area without imposing unnecessary restrictions. This does, however, mean that each center must have a clear idea of appropriate approaches to assisting economic development.

The Rice Center evaluation of nine of the centers is in one respect problematical. They used information they obtained from 12 non-EDA-funded centers which they regarded as having been successful, and refined the measures which the center used to measure their own performance, as the measures to be applied to the university centers.³⁵ This can cause potential difficulties in two ways. First, no account appears to have been taken of the objectives or functions of these other centers. Second, by adopting a particular performance measure, a

center is not necessarily adopting a measure which is either theoretically justified or necessarily applicable in another situation. They appear to have used a form of circular logic to arrive at the evaluation instruments of "job generation" and "productivity improvement." Criticism is not being leveled at the usefulness of these as at least partial measures of performance, but rather at the method by which they were developed.

The Rice Center list of questions to be administered to center directors concentrates far more on the administrative aspects of the program than on economic development outcomes. It is difficult to see any underlying idea of what notion the Rice Center has about the economic development process. This leads to the conclusion that the Rice Center project was more concerned with administrative efficiency than with economic development outcomes. They have also set out a number of quantitative measures under the headings of "efficiency" and "outreach," but these also give little insight into their notion of local economic development.³⁶

As indicated above, both the Rice Center evaluation and the EDA themselves place some degree of emphasis on the number of jobs created as a key indicator of the success of the centers.³⁷ Some center directors, particularly a number of them who were mainly involved with capacity-building activities, regarded this as a simplistic measure which is politically appealing but not of great significance. It does, however, receive a relatively high rating from the center directors as a group, as reflected in Table 10.

The number of jobs created, as a result of activities by the center, is not reported by a significant number of the centers. For those centers which have reported on this, either in the reports obtained in this study or in the evaluations undertaken by the Rice Center, the cost per job of the jobs created has been calculated to be approximately \$800. This figure was calculated by

summing the number of jobs reported by the centers as having been created and dividing this figure into the total budget for the center in the year in which the center reported that the jobs had been created. This is a very rough calculation, in that some centers reported jobs created for more than one year and these have been aggregated without any adjustment for inflation. Data from a total of eight centers have been included in this calculation.

The cost of jobs created as a result of the activities of a particular center in a given year varied from a low of \$160 per job to a high of \$54,800 per job. If a center is less willing to report job creation, it may be because it has not been very successful in this area. This will lead to the average cost per job being an underestimate. On the other hand, the number of jobs projected by the centers to be created in the medium term has been excluded from the calculations, as have any "second-round" effects. The exclusion of these factors will mean that the average which has been reported is likely to be an overestimate.

These figures for the cost per job of the jobs created compare favourably with other published estimates. In a recent study which concentrated on refining measures of job creation resulting from loan subsidies for development, Harland found that the cost per rural job created resulting from the Urban Development Action Grant Program subsidized loans to rural manufacturers ranged between \$1,963 and \$4,216.³⁸ Harland quotes other studies which have estimated the cost per job created as the result of government-supported industry development as ranging between \$13,000 and \$19,000. In order for a firm conclusion to be drawn about the apparent success of the university centers program, a more careful examination of the method used by each center in calculating job creation would need to be undertaken.

Job creation is, however, only an indication that part of the local development process is working. We need to examine what the centers are doing to help set the conditions under which job creation can occur. We also need to follow through the paths of growth after the initial job creation has occurred and examine the quality of those jobs and their importance to the local economic structure. It is not possible to draw specific conclusions at this stage about the success rate of most of these activities because of the limited nature of the available information. The approach taken here is to comment on the extent to which the broad range of activities of the centers are in line with the type of activities which the policy framework suggests.

It is not suggested or implied here that each center, in order to be judged successful, should necessarily be embarking upon a broad range of activities which address the relatively wide spectrum in the framework developed above. It is acknowledged that some centers have deliberately taken upon a specialist role; for example, that of facilitating technology transfer. They may have been highly successful in this one activity.

We will now examine the potential which the centers have for contributing to local economic development, using the main questions outlined in the policy framework developed above.

Local Infrastructure Projects

As indicated in Table 4, approximately half of the centers are embarking on economic development capacity-building exercises as either the sole rationale underlying all their activities or a major part of their activities. This is reinforced in Table 10, where 17 of the centers have rated capacity building as a "very important" basis upon which to measure their activities, and a total

of 12 centers have rated it as one of the three most important bases upon which their activities should be measured.

Capacity building involves a diverse range of activities, and it has not been possible to explore them or, more particularly, their degree of success in detail here. It should be noted that capacity-building on its own will not create development; it simply aims to create an environment conducive to development. In many economically distressed areas, capacity building on its own certainly will not be enough to ensure that the development process commences or continues. There will need to be other factors at work either within the area or outside it.

Capacity building obviously should have a specific focus and should be directed at aspects included under other headings in the policy framework; e.g., export trade development, better linkages in the local economy, and so on. Centers which are embarking entirely on capacity-building activities could consider other activities under other headings which will complement their current activities.

A Climate Conducive to the Activities of Entrepreneurs

Information on assistance to entrepreneurs was not specifically collected as part of the survey. However, it is noted that only a small number of centers have engaged in activities which have tried to identify and provide assistance to entrepreneurs. Whilst assisting entrepreneurs, as with other "picking of winners," activities may be regarded as a group of activities which are of relatively high risk. This is because there is no agreed understanding of how entrepreneurial skill develops the presence in an area of successful entrepreneurs is an important ingredient in the development process.

The Local Area as a Seedbed for Creativity

If the local area provides a seedbed environment for the creation of new, usually high-technology-based products, this would appear to be an important "engine" to start the growth process. It may be expected that the presence of a university in an area provides an important ingredient. However, as will be noted in Table 11 (which reports the rating of the factors likely to lead to the success of a center), the factors that might be indicators of the existence of a seedbed environment, such as research output of the university, are given a relatively low rating. This may be explained either by the fact that very few of the university centers are located at major research universities or, alternatively, that the research output is not specifically relevant to firms in the local area or to the perceived needs of the local area. It is also possible that the centers have not been successful in obtaining cooperation from the relevant faculty in this area.

As indicated in Table 11, the commitment of senior and junior faculty to the center and its operations is given a considerably lower rating than the commitment of external individuals and groups in contributing to the success of the center. There is little evidence that the university's human resources are being effectively utilised in the development process. Given that the EDA, in outlining the university centers program, has specifically mentioned the better utilisation of university resources for the benefit of the area, this is one area in which it must be concluded that the program appears to have been less than successful.

The Local Political and Labour Market Environment

Some of the capacity-building activities mentioned above will doubtless have an impact on the ability of the formal local political institutions to

understand the nature of the problems the area faces and approaches to dealing with those problems. In Table 5, the dissemination of information through workshops, conferences, seminars, conferences, and so on, rated amongst the most important activities which most centers considered they had undertaken.

Discussions with center directors where capacity building was a major focus indicated that much of this activity was directed towards both practitioners and elected officials within the local political system. Similarly, it is not difficult to conceive of capacity-building exercises which could expand this understanding to the broader community. The level of detail in the information provided did not readily allow an accurate judgment as to what extent this type of activity is occurring. There is, however, little indication that other community groups were the focus of capacity-building activities to any great extent.

Similarly, there is little indication that the capacity-building activities have been extended to include the local labour unions in any significant way.

Factors Exogenous to the Local Area

These factors, by definition, are difficult if not impossible to develop local initiatives to deal with. Little information has been collected in this study which allows much light to be shed on this factor.

Catalytic Developments

In the list of important activities in which the centers have been involved, set out in Table 5, there is no evidence of the centers having embarked on a significant number of activities which fit into the category of catalytic developments. The one activity which should be mentioned here is the transfer of technology from the university laboratory to local industry. As

indicated previously, this appears to be an activity which is not given a great deal of prominence in most centers.

Increased Linkages within the Local Economy

When specifying "increased inter-firm trade within the area" as one of the bases upon which the success of the centers could be measured, an attempt was being made to gain some assessment of the the role which linkages within the local economy might play as a path of growth. This particular factor received the second-lowest number of ratings as "very important." This is not necessarily disturbing, as it is an indication of the way in which growth might be transmitted once the process commences. It does recieve a relatively high "important" rating and a moderately low number "of no consequence" ratings. In reviewing the reports of the university centers, there is certainly relatively little said specifically which could be interpreted as the centers having a high awareness of this factor.

For those centers that predominantly provide assistance, it is considered that the scope for both backwards and forwards linkages could be a useful criterion to be used by the centers in setting priorities for the firms which they assist.

A further explanation for some centers not giving this factor a particularly high rating is that, in a number of areas under consideration, the degree of economic distress is high. In such cases, the centers' activities may be more focussed on capacity building and on attempting to develop ways to start the growth process rather than thinking about ways in which the path of the development process can best help the local economy.

Export Development

Increasing the export capacity of local firms is regarded as "very important" or "important" by 25 of the centers surveyed. One conclusion from this is that there is a high level of awareness of the need to export goods and/or services outside the region or outside the country. In the questionnaire, the definition of "export" was left deliberately vague.

However, when the reports produced by the centers are examined in detail a different picture emerges. Three of the centers have a very strong export orientation, as measured by the use of the term "export" in the name of the center, a specific mention of export-related development in the objectives set down by the center, or in the type of projects which the center is undertaking. At the other end of the spectrum, however, 12 of the centers make no mention of exports-related activity by the center or mention export activity only in passing. The other eight centers mention some activities which are export-related.

There seems to be a recognition by the centers of the importance of exports, but an inability or unwillingness to translate this into projects which are export-related. This may well reflect the relative difficulty in identifying products or services for which there is a clear market niche in the export arena. The better utilisation of other government assistance programs which are export-oriented could be of use here.

Conclusion

As a result of the work which has been undertaken to date, it is not possible to draw firm conclusions about the operations of any particular university center. However, it is possible to draw some tentative conclusions about the operations of the program. The policy framework does provide the basis for an

individual center to determine where their economic development activities fit into the broader economic development process at the local level.

Ideally, it would be desirable to be able to draw conclusions about the cost-effectiveness of the operations of the university centers and their activities, but the data gathered as part of this study do not allow this. There is some indication that the centers are indeed cost-effective. For those centers for which the cost per job created is available, it would appear that the majority perform well, when compared with the cost per job created through other publicly funded programs.

At an intuitive level, the strong impression gained is that many of the centers are extremely effective in transferring knowledge from the university sector to external groups, both private and public. It must be stated, however, that there is a clear indication that many of the centers make little or no use of the pool of available faculty knowledge in their day-to-day operations. Given that the use of university expertise is one of the specific objectives of the program, it must be considered as having been less than successful in this respect.

The centers themselves believe that the four most important measures of their performance are:

- their economic development capacity-building activities
- productivity improvement by firms in the area
- the number of jobs which they create
- amount of information provided

Capacity building is not a measure of performance in its own right but rather a category of activities. It would appear that further work needs to be undertaken in order to develop indicators of the success of a range of capacity-building activities. This needs to be done before conclusions can be drawn about the effectiveness of capacity-building activities. There are a number of methodological issues which have to be confronted here, including the time

period over which the success or otherwise of capacity-building activities should be measured. We can conclude that the types of activities most centers are involved in fit well within the theoretical framework which has been developed and, logically, must assist the development process.

It is not accepted here that the only measures of the performance of the university centers should be based around these four factors. Indeed, it is argued that measures or indicators related to the six groups of theory outlined in the paper need to be developed. However politically appealing it may be, it is not satisfactory to adopt simple measures such as the "number of jobs created" as the only measure of success in a complex process.

The three most important factors leading to the success of the centers, as judged by center directors, are:

- the commitment of the university chancellor or president
- the good understanding of the area and its problems which the center staff have
- the availability of funding for a known period of time

To this list it is felt that the dedication and hard work of the center directors should be added. Center directors who were contacted as part of this study were uniformly enthusiastic about the potential which their centers have and appeared highly committed to the work of the center. Although the future of the whole program may be considered uncertain in the current climate, the willingness of the EDA to commit funds for a seven-year period allows the centers to make medium-term plans for their operations.

Finally, it is felt that the centers should focus more on assistance to export-related development. Whilst most centers appear to recognise the importance of this focus, relatively few appear to be giving great emphasis to it in their day-to-day activities.

NOTES

- ¹AASCU (1986), The Higher Education-Economic Development Connection, AASCU, Washington, p. 30.
- ²Steinnes, D.N. (1987), "On Understanding and Evaluating the University's evolving Economic Development Policy," Economic Development Quarterly, Vol. 1 (3), p. 214.
- ³AASCU, op. cit., p. 49.
- ⁴Some notable exceptions are Steinnes, op. cit., and Stenberg, P. (1989), "Universities, Regional Economic Growth and Regional Economic Clusters," Paper presented to the North American meeting of the Regional Science Association, Santa Barbara, November 1989.
- ⁵Malecki, E.J., "Public Sector Research and Development and Regional Economic Performance in the United States," in Thwaites, A.T., and Oakey, R.P., eds. (1985), The Regional Economic Impact of Technological Change, St. Martins Press, New York.
- ⁶Luger, M., and Goldstein, H. (1990), Technology in the Garden: research parks and regional economic development, Final Report to the Ford Foundation.
- ⁷See for example Goldstein, H.A. (1987) The State and Local Industrial Policy Question, Planners Press, Chicago, p. 60.
- ⁸Rolzinski, C.A., "The Power of the People in Community Economic Development," in AASCU (1986), Issues in Higher Education and Economic Development, AASCU, Washington.
- ⁹Blakely, E.J. (1989), Planning Local Economic Development, Sage, Newbury Park, p. 58.
- ¹⁰See for example the activities of the university centers based at the State University of California at Chico and the University of Southern Mississippi. These are just two examples. There are numerous other University Centers performing similar functions.
- ¹¹See for example University of California at San Francisco (1987), Economic Impact; Bonner, E.R. (1968), "The Economic Impact of a University on its Local Community," American Institute of Planners Journal, Vol. 34 (5); and Rosen, M., et al. (1985), The University of Wisconsin-Madison and the Local and State Economies: a second look, Monograph no. 20, School of Business, Wisconsin University, Madison.
- ¹²Federal Register, May 24, 1990, p. 21493.
- ¹³Ibid., p. 21494.
- ¹⁴Loc. cit.
- ¹⁵Economic Development Administration (1983), University Center Reporting Guidelines, EDA, Washington, D.C., Sect. IV.
- ¹⁶The Rice Center (1989), Evaluation of Selected University Centers.
- ¹⁷EDA, op. cit., p. 3.
- ¹⁸Butte County in northern California was bailed out by the Governor of California at the last moment. County officials have been reported as saying that the same situation is likely to arise again next year.
- ¹⁹Blakely, op. cit., p. 67.

- ²⁰Research soon to be published in the United States by Bennett Harrison is likely to turn this particular conventional wisdom on its head.
- ²¹Blakely, op. cit., p. 67, and Teitz, M. (1989), "Neighbourhood Economics: Local Communities and Regional Markets," Economic Development Quarterly, Vol. 3 (2), p. 112.
- ²²Teitz, op. cit., p. 121.
- ²³See for example Scott, A., and Storper, M. (1987), "High technology industry and regional development: a theoretical critique and reconstruction," International Social Science Journal, Vol. 39, p. 218.
- ²⁴Goldstein, H., and Luger, M. (1990), "Science/Technology Parks and Regional Development Theory," Economic Development Quarterly, Vol. 4 (1), p. 65ff.
- ²⁵See for example U.S. Office of Technology Assessment (1984), Technology, Innovation and Regional Economic Development, pp. 37-40.
- ²⁶See for example University of California at San Diego, Connect, Fall 1990.
- ²⁷Scott and Storper, op. cit., p. 217.
- ²⁸Ibid., pp. 224-229.
- ²⁹Blakely, op. cit., pp. 115-117.
- ³⁰Healy, P., and Barrett, S. (1990), "Structure and Agency in Land and Property Development Processes: Some Ideas for Research," Urban Studies, Vol. 27 (1), pp. 89-103.
- ³¹Goldstein and Luger, op. cit., p. 69.
- ³²Ibid., p. 65.
- ³³Ibid., p. 74.
- ³⁴EDA, op. cit., pp. 2, 3.
- ³⁵The Rice Center, op. cit., pp. 2-4.
- ³⁶The Rice Center, op. cit., Attachment 1.
- ³⁷EDA, op. cit., p. 3., and Rice Center, op. cit., p. 4.
- ³⁸Harland, M. (1990), "Measuring Capital Subsidy Costs and Job Creation," American Planning Association Journal, Vol. 56 (1), p. 60.

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