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Economic Conflicts in the Rural-Urban Fringe: A Problem of Metropolitan Organization[1]

by

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Due to urban expansion, the margin between agricultural and urban land uses frequently has been stormy in terms of public debate and action. This margin has not been stable. The relentless pressure of urban growth has been a worldwide phenomena extending the cities into rural areas. A British writer characterized the process by entitling his recent book Cities in Flood,[3] and William H. Whyte,[4] in a more popular vein, calls attention to "urban sprawl" as a characteristic of metropolitan growth in the United States. This urban buildup radiating from small towns and cities alike is plainly visible to the casual observer. The forces of economic growth have generated centralizing tendencies, on the one hand, to create the industrial--multifunctional--city. Shear size of the more monolithic structures, on the other hand, has produced the recent conurbations with the suburban areas of one generation being over-ridden by the urban agglomerations of subsequent generations.

Before moving on to an examination of problems associated with this phenomen, it is worthwhile to note that the existence of urban growth is not limited to the West Coast although this region has been receiving special

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2/ Department of Agricultural Economics, University of California, Berkeley. Appreciation is acknowledged to Professor S. V. Ciriacy-Wantrup and Michael F. Brewer for helpful comments.

3/ Self, Peter, Cities in Flood, The Problems of Urban Growth (London: Faber and Faber, Ltd., 1957), p. 189.

4/ Whyte, William H., "Urban Sprawl," Fortune, January, 1958, p. 103.

note in the professional journals as well as by conferences and local planning bodies.[1] Cities have been growing on a worldwide basis with the industrialized countries becoming the urbanized countries; and, in the currently nonindustrial countries, urbanization is gaining momentum as development takes place; for example, the percentage increase in city size was 126.3 per cent in the South American countries during the 30-year period, 1920-1950.[2] Of course, Egypt and Greece are urbanized but not industrialized. While the populations in the great cities of Asia do not, as yet, outnumber the rural inhabitants, their fringe impact is not to be neglected since city growth continues to climb.[3] And in the United States, the sparsely settled western and southern coasts have shown dramatic changes. Yet the largest proportion of our population will be in the Atlantic Coast and the lower Great Lakes region.[4]

1/ Conference on Metropolitan Problems, Organizing for Services and Functions in Metropolitan Areas, Berkeley, California, July 24-25, 1958. (Proceedings to be published by the Department of Political Science, University of California, Berkeley and Los Angeles.)

Gillies, James, and Frank Mittelbach, "Urban Pressures on California Land: A Comment," Land Economics, vol. XXXIV, no. 1, February, 1958, pp. 80-83.

Gregor, Howard, "Urban Pressures on California Land," Land Economics, vol. XXXIII, no. 4, November, 1957, pp. 311-325.

Gregor, "Urban Pressures on California Land: A Rejoinder," Land Economics, vol. XXXIV, no. 1, 1958, pp. 83-87.

Lessinger, Jack, "Exclusive Agricultural Zoning: An Appraisal I--Agricultural Shortages," Land Economics, vol. XXXIV, no. 2, May, 1958, pp. 149-160.

2/ Calculated from the United Nations 1956 Demographic Yearbook by Kingsley Davis, "A Crowding Hemisphere: Population Change in the Americas," The Annuals of the American Academy of Political and Social Science, vol. 316, March, 1958.

3/ Davis, "Urbanization and the Development of Pre-Industrial Areas," Economic Development and Cultural Change, vol. III, no. 1, October, 1954, pp. 16-20.

4/ Ackerman, Edward A., "The National Environment of Urban Growth and Highway Construction," Urban Land Institute (Washington, D. C.: November, 1957), pp. 75-85. (Urban Land Institute Technical Bulletin No. 31.)

For our present purposes, I shall assume that this worldwide growth trend will continue although not uniformly for all localities, and some decreases will take place with the shifting pattern of economic development. The relative importance of population in the core of the metropolis may be expected to continue to shift in favor of the fringes although urban redevelopment of various types will improve the holding power of the center. As a result of urban expansion, the fringe will continue to be an important area of rural-urban transition whether the rural culture is urbanistic as in large portions of the United States or tribal as in much of Africa.1/ A common characteristic of these areas of transition is the disorganization of economic, political, and social processes.

I suggest that we focus our attention upon this characteristic. Such a subject is too broad to cover on a worldwide or, in detail, on a national basis; but let us direct our attention to certain common elements of the rural-urban fringe—the breakdown of pre-existing institutions with the consequent necessity to build new ones.

I

Existing evidence seems to indicate that the metropolitan community will be the dominate type of urban settlement during the twentieth century as the compact city characterized the earlier phases of the industrial revolution during the nineteenth century.2/ It also seems clear that conurbations will not only remain dominate but will continue to expand, probably with a continuation of the process of dispersal from the central city toward a buildup of the

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1/ This statement does not imply that the geographic fringe area is the sole or primary "melting pot" area of the metropolitan community.

2/ Hawley, Amos H., The Changing Shape of Metropolitan America: Deconcentration Since 1920 (Glencoe, Illinois: The Free Press, 1956), p. 1.

satellite cities[1] and a lengthening of the metropolis' radial influence (approximately 25 to 30 miles were added between 1900-1950).[2] A growth pattern of this type will be more consumptive of land space for urban use than a continued increase in the density of the core area. But the proportion of land area put to urban uses in the United States will be a relatively small proportion of the total area in the country. In 1950 urban places used about .9 per cent of the continental United States or about 4 per cent as much land as was in farm cropland.[3] If this percentage is doubled or tripled, the relative area will still be small and will not materially reduce the amount of land available to agriculture nor can the over-all effect by judged as detrimental. Agriculture seems to be capable of meeting its production tasks in view of the persistant increases in production due to technological advance and the possibility of land development. Recent emphasis upon the loss of agricultural land to nonfarm uses has turned our attention from some of the more pertinent aspects of this land-use change.

At this point many have asked "upon what basis does such a judgment rest?" In answer, they have very carefully examined numerous trends to arrive at estimates of population and other factors in the year 1975 and the year 2000. But after examining many of these estimates, one is left with an uneasy feeling

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1/ Vining, Rutledge, "A Description of Certain Special Aspects of An Economic System," Economic Development and Cultural Change, vol. III, no. 2, January, 1955, pp. 147-195.

2/ Hawley, op. cit., p. 161.

3/ Total land area of the United States--1950 Census 1,903,800,000 acres
Total land area in farm cropland other than that used only for pasture--1950 Census 408,500,000 acres
Total land area in urban places--estimated by Clawson 16,600,000 acres

Clawson, Marion, Burnell Held, and Charles H. Stoddard, "Future Land Use in the United States" (Washington: Resources for the Future, Inc., June, 1958), part II, pp. 78-79. (Unpublished manuscript.)

with respect to their relevancy for policy and their validity.[1] A more fruitful approach might be made by studying the economic factors important to the fringe areas and by studying the institutions used to deal with these factors.

Although it has been assumed that the loss of land to agriculture will be of relatively small national import, local areas and a few specialized crops may feel the brunt of this transfer. If significance is to be found from the loss of agricultural land, I suggest that it will be at this point of local impact. And if public action is to be taken, it must largely be justified in terms of the urban demand for open space and for specialized services. On some issues the aggregate character of local problems comes through to the national economy and appropriate congressional action is imperative. But for the most part, the determination of the specific character and application of public action to meet fringe problems is largely a matter for the local metropolitan community and its subcommunities. The diffused nature of these problems often makes it difficult to focus the attention of the state and national governments. Consequently, research efforts might well be directed toward a study of the institutions which reflect local interest at state and national levels since expenditures from these levels have important local effects. In this sense, a federal agency may be an important unit of local government.

One of the characteristics of conurbation is the dispersal of population from the central core to the hinterland. As frequently observed, the area of transition from rural to urban land use is graded through a zone of intersparsed settlement. At some locations the urban uses are dominate while at others the rural uses are more in evidence. At times the urban uses have so

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1/ For a critical examination of such projections, see Ciriacy-Wantrup, S. V., "The Demand for Land and Water by Agriculture," presented before the Land Economics Institute, University of Illinois, June 24, 1958, p. 32.

encircled the agricultural uses that development of this land is severely restricted. But this margin is not static. For example, urban encroachment may force out an extensive type of farming with the land remaining idle for a time but with it being subsequently developed in a more intensive type of agriculture before actual urban use is established.

The process of urban development may take several forms--stringing along the highway, leapfrogging over the rural countryside, or infiltrating "among walnut and orange groves." Sometimes a shopping center will be an early development to serve as a nucleus for future growth--or investment in such facilities may wait until the potential service area is well developed. In any event, the main guiding forces are those expressed through the real estate market and a county planning commission, if such exists, with whatever controls are available for subdivision, zoning, city expansion, development of services, and other similar activities.

On the urban side, the servicing of low-density populations is generally more expensive per capita than for more compact settlement. The need to purchase heavier duty facilities as population density rises does not offset the costs from extensive type of development.1/ Utilities, sewers, roads, public transportation, some forms of recreation, and similar services generally increase their costs per capita as the dispersal of settlement increases, provided land costs do not compensate. Other services vary more with the size of population rather than with its dispersal. They do not increase greatly in per-capita cost with dispersal.

1/ Ludlow, William H., "Urban Densities and Their Costs," in Coleman Woodbury's Urban Development: Problems and Practices (Chicago: University Press, 1953), part II, pp. 142-143.

As the demand for these services increases with greater population density, a strain may be placed upon the existing organizational structure to finance and manage the required expansion. The provision of school service has been frequently put into this position in the post-World War II era[1] with existing organizational structures being severely tested to meet tax and other requirements. Or continued, unplanned growth may make redevelopment both necessary and more costly--for example, road construction. Frequently, the initial strip development so encroaches the right of way that, before future highway construction can take place, the road must be completely relocated or the expensive abutting properties must be acquired. Another pattern, "leapfrog development," may leave "open space" between settlements. This space has been characterized as "dead land" since it may become difficult to utilize economically.[2] Such space may remain unused even though the metropolitan community is extending beyond and developing "new" land.

With extension adding to extension and even colliding with growth from other directions, existing political boundaries are overrun. The central city cannot keep pace. Even if it could, many people want to outrun it in the often mistaken desire that they can create an "ideal little community" which will provide the maximum number of services for a tax commensurate with a sparsely settled rural community. The actual situation is frequently reversed--taxes are relatively high and services and relatively poor. Each locality attempts to follow the "American tradition" and meet "its own"

1/ Stocker, Fredrick D., "Some Effects of Suburban Residential Development on Local Finances," Agricultural Economics Research, vol. 18, no. 2, April, 1957, pp. 37-53.

2/ Beckman, Herman G., "Decentralization and Blighted Vacant Land," Land Economics, vol. XXXII, no. 3, August, 1956, pp. 271-280.

problems. Yet, they are frequently tackling problems which are not wholly their own and which cannot be solved by adding another district to the existing unmanageable layers of governmental jurisdictions.

But what of the other side--some farmers sell their land to the subdividers and find new occupations, retire, or relocate their farming operations. In order to relieve their capital gains position, the last group pushes up agricultural land prices at some distant location. Other farmers continue to hold out for higher land prices and watch surrounding land uses change while attempting to maintain, in an undisturbed fashion, their agricultural operations. They do not want to relinquish the proprietory prerogatives which they held prior to the increase in population density.

Farming operations are frequently more difficult to carry on with increases in density. Traffic is heavier, making it more difficult to move farm machinery on the roads. Burning of farm wastes, as well as the flies and the odors which may be generated, often are objectionable to the neighbors. These consequences, of otherwise normal farming operations, may result in the passage of prohibitionary ordinances. The spraying of fruit and other crops with deadly poisons may not be appreciated by nearby householders, and the farmer may not appreciate the pilfering of his orchards, vegetables, and other crops. In particular, the farmer objects to the increased tax load which accompanies the suburbans' demand for greater public service. Not only does the tax rate increase, but the assessed value of his property also is raised due to nonfarm competition for land. Although he is aware of a greater potential value to his property, he may feel inequitably imposed upon due to the tide of urbanization which has surrounded him. He may not object verbally to progress, but he does not want to be forced to transfer his property at a time not his own choosing.

As a result of this point of view, the farmer may oppose incorporation into a city or the creation of special districts to provide services he feels he does not want or the passage of ordinances which restrict his former property rights through the use of the police power. In fact, farmer resistance may be organized to represent his point of view in that he may advocate the creation of agricultural zones to deflect the tide of nonagricultural land uses; and farmers have been known to create their own "rural cities" to protect their properties from engulfment.1/

This discussion has been presented in a somewhat descriptive fashion in order to illustrate some of the elements at work in the rural-urban fringe. By this method the problems can be identified in terms of the participants in the adjustment process, and insight can be gained into the conflicting and overlapping patterns of interest. With this information at hand, alternative approaches for creating an institutional pattern which will relate explicitly the rural, the fringe, and the urban interests as a group of interdependent interests can be examined.

1/ California, Government Code, Section 35009.

Lester, Jerry, "Inside a Santa Clara Valley Greenbelt," California Farmer, March 2, 1957, p. 258.

Lester, "Santa Clara's Greenbelts Given Public Hearing," California Farmer, February 16, 1957, p. 202.

Lester, "Should California's Fertile Valleys be Saved," California Farmer, May 11, 1957, p. 526.

Lester, "Will Incorporation Help Solve Farm-Urban Problems?," California Farmer, September 28, 1957, p. 270.

Wolfe, Ray H., "California's Cow Towns--The Answer to Encroachment Problems?," California Farm Bureau Monthly, August, 1956, p. 9.

Wolfe, "A Progress Report on California's Year-Old Cow Towns," California Farm Bureau Monthly, August, 1957, p. 14.

Schueller, Martin L., "Greenbelt Zoning Means Harmony in Rurbania," California Farmer, September 14, 1957, p. 238.

II

The fringe may be broken, for present purposes, into three interest groups--the agricultural group composed of the farmers whose land is being purchased for urban development or whose land value is affected by the urban demand. The suburban interest is represented by the people who are not establishing their urban land use in the city proper nor in the agricultural area. For many purposes, it would be improper to classify them as a group because they are so hetrogeneous--including the residents in the rural slums as well as the exclusive estate subdivisions conveniently located just outside the city limits. And the city is the hub of diverse interests and serves as a center of cummunication, employment, business, and public services. The city has an interest in the fringe for this is where many of its workers live. This interest shall not be elaborated further at this time as both the popular and professional literature abound with descriptions of these interrelations. To note the interest's existence is sufficient.

The farmer frequently will attempt to maintain his operations in the conventional fashion even though the density of settlement surrounding him is increasing; and, as previously noted, he has a desire to be rid of the extra burden the new population has placed upon him. Yet, the potential of selling out to nonfarm interests is ever present; consequently, there is a very positive interest in the character of the new development which is encroaching. The farmer interest is very real because of the influences upon the potential value of his own property. Of course, this interest may be shared with other nonfarm interests who do not want to see the values of their properties deteriorated. To protect this economic position against the uncertainty of a vocal nonfarm group imposing restrictions upon his freedom of action and of nonfarm development which may tend to limit the potential nonfarm value of

his property, he may seek to take group action through the agencies in which he is represented most ably. The institutions used may vary depending upon the locality of residence, but the county and the state governments have been frequent avenues of approach. Farmer strength in a county government of a rapidly developing area will depend, among other things, upon the extent of urbanization in nonincorporated areas and in the role of the real estate development interests. Of course, farm interests are not always in agreement among themselves with their conflicts of interest at times playing to the advantage of those desiring to move in.[1]

Farmers also exert their influence through state legislatures. These activities often are reflected in the passage of enabling legislation which permits the county to take action. This influence may be seen from the number of states which permit some form of rural zoning[2] although farmers have not been the only supporters of such legislation. With the establishment of a county planning commission, a forum may be provided for focusing the various interests and for developing a point of view which will, in part, reflect farmer interests.

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[1] Fairman, R. James, "Discussion of Some Economic Factors Influencing Planning for Agriculture in Southern California," report of First Annual Conference, Southern California Planning Institute, edited by E. A. Englebert (Berkeley and Los Angeles: University Extension, University of California, 1955), p. 30.

[2] Solberg records 23 states as having passed zoning enabling legislation in 1949. The author has not found more recent information available. Solberg, Erling O., "Rural Zoning Tools and Objectives," prepared for the National Planning Conference (Detroit, Michigan: October 12, 1953), p. 5.

Solberg, Rural Zoning (Washington: Govt. Print. Off., 1952), p. 23. (U. S. Department of Agriculture, Bureau of Agricultural Economics, Agricultural Information Bul. No. 59.)

It should be pointed out, however, that at times persons interested in planning concentrate too greatly on their own ideal. Tension may develop if the planning officials isolate themselves from the desires of the citizens and attempt to act as the determiners of group values. Attitudes such as these are being dissipated as more is learned about public participation in the process of community planning.[1/]

In California the culmination of farmer representation at both state and county levels has lead to the passage of state legislation permitting the establishment of exclusive agricultural zoning[2/] and the assessment of farm land in these zones at their agricultural use value rather than at a competitive market value taking into account their potential transfer to urban uses.[3/] These means are used in the belief that existing investment in farming may be protected against the uncertainty of indiscriminate urban encroachment.

Still within the fringe and outside the city limits, the suburban interests also have a desire to protect their property values against the uncertainty of deterioration due to undesired "neighborhood relations."[4/] The resulting clash within the fringe is frequently a contest between economic

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1/ Smith, Stephen C., "The Process of County Planning: A Case Study of Henry County, Indiana," Land Economics, vol. 26, no. 2, May, 1950, pp. 162-170.

2/ California, Government Code, Section 35009 and Government Code, Title 7, Planning.

3/ California Constitution, Article XI, Section 12, calls for the assessment of real estate at "full cash value." The legislature amended the Revenue and Taxation Code to add Section 402.5, California Statutes, 1957, chap. 2049, p. 3630, "In assessing property which is zoned and used exclusively for agricultural or recreational purposes and as to which there is no reasonable probability of the removal or modification of the zoning restriction within the near future, the assessor shall consider no factors other than those relative to such use." The constitutionality of this statute has not been tested in the courts.

4/ Ciriacy-Wantrup, S. V., Resource Conservation, Economics and Policies (Berkeley: University of California Press, 1952), pp. 282-286.

groups attempting to segregate themselves from another economic group. At times, these differences are straightforward with the issues plainly stated while at other times they are hidden--or thought to be hidden--behind the guise of standards of public health, welfare, or amenity values.1/

The suburban area is broken into standardized subcommunities with each establishing the standards of school, public health, welfare, and amenities which it desires and can afford. Some of these subcommunities are incorporated and others receive their service through special districts or on contract with the county or nearby city. Thus, an immigrant to suburbia surveys the "communities for sale" and selects the one which will fit his pocket and taste. Of course, the story has been told often of the movement from one suburban locality to another as a part of the vertical and horizontal social movement. By this process of seeking a better job or a new environment in which to raise a family, the demand for "segregated" housing has boomed.

The resulting pattern of development forces each community to attempt to solve "its own" problems in the best possible way--with the result that we not only have "neighborhood relations" but community relations. More precisely, community interdependence may be complementary or competitive with respect to both benefits and costs.

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1/ Haar, Charles M., "Zoning for Minimum Standards: The Wayne Township Case," Harvard Law Review, vol. 66, no. 6, April, 1953, pp. 1051-1063.

Haar, "Wayne Township: Zoning for Whom?--In Brief Reply," Harvard Law Review, vol. 67, no. 6, April, 1954, pp. 986-993.

Norlar, Val, and Frank E. Horack, "How Small a House?--Zoning for Minimum Space Requirements," Harvard Law Review, vol. 67, no. 6, April, 1954, pp. 967-986.

On the suburban side the focal point of interest may be, in part, the county government but also within special districts which are organized to provide fire, police, road, hospital, and other services--if they are to be provided. Over-all community planning may rest in a property owners association and their representation to the county planning commission if such a commission exists.[1/]

But what of the city? Does it have an interest? By definition the city is not in the fringe although some areas in the fringe may be incorporated. "The city" is interested that the residents of the "bedroom boroughs" can have access at a reasonable cost to their employment. It also is concerned with the movement of commerce and light industry from the central core to the more pastoral industrial parks in the suburban or rural areas. Shifts in retail sales, tax receipts, public works expenditures, urban redevelopment, and other such items have an incidence upon "the city" which often means financial difficulty. To keep pace with the outward spread, strips and bits of land often are annexed. Frequently, these annexations will be narrow strips along either side of the major highways servicing "the city." The contour of "the city" is one of long arms reaching out in many directions to virtually surround unincorporated areas.[2/] "The city," of course, is organized to handle its internal affairs; but it can do relatively little about many of the problems of conurbation which are thrust upon it.

[1/] It is interesting to note the role of Tennessee's State Planning Commission in both regional and local planning. See, California Legislature, A State Office of Planning for California, report of the Subcommittee on County and Community Planning, Assembly Interim Committee on Conservation, Planning, and Public Works, Assembly Interim Committee Reports, 1953-1955, vol. XIII, no. 1, April, 1955, p. 61.

Tennessee State Planning Commission, The Tennessee Planner, October, 1952, vol. XIII, no. 2, p. 80.

[2/] For an example of this type of city growth, see the map of San Jose, California, in Gregor, Howard F., "Urban Pressures on California Land," Land Economics, vol. XXXIII, no. 4, November, 1957, p. 323.

III

The continuing growth of urbanization means that the pressure to transfer land to uses of increasing intensity will continue. The existence of problems on both the urban and the rural side of the zone of transference have been noted. In addition, the rural, the suburban, and the city interests are represented by different organizations. Many of the problems engendered by the growth of the metropolitan community cannot be met within this system of fragmented decision making. Other avenues of approach are being sought and new institutions are being created to meet these needs. A unified metropolitan government, a federation of metropolitan communities, or the development of contractual relations between counties and incorporated areas or special districts are among the forms of organization with which experimentation is proceeding. No blueprint is proposed for it is within the tradition of home rule to permit each area to select and to adapt the particular organizational form which will be most suitable as judged by its citizens. Each metropolitan area needs to work out a set of institutions which will permit it to come to grips with its problems.

An early step in this process will be the identification of those problems which are of interest to the whole metropolitan community. The fact that problems are common throughout the area does not mean that they necessarily fall within the frame of reference of metropolitan decision making. However, for those problems which are interrelated functionally among the existing units of government coordination of decision making and of execution should be thoroughly explored. Such exploration does not fall within the province of any one discipline. Among others, the talents of the political scientist, sociologists, lawyers, engineers, and economist can contribute in a meaningful way to the solution of many of these problems.

For the economists, his work in the field of public finance is probably best known. Yet, I suggest that there is another area in which his contribution will become increasingly important--public expenditures. The public official and the voting citizen are increasingly seeking guides which will assist them in answering the simply asked questions with respect to public expenditures--what for, when, where, and how much. Answers to these questions may not dispel the emotionalism which frequently is connected with these land-use changes. The small locality often will resist the encroachment with every tactic available In this type of situation, a clear analysis of the benefits and the costs of taking action and an identification of the incidence of these benefits and costs among the various groups at interest will contribute to improving the process of public decision making. Although, it should be noted that care must be exercised to maintain the scientific standards of analysis with explicit recognition of the value premises which might prejudge the solution.1/ Of course, benefit-cost techniques are well known for their application to public expenditures in water resources development.2/ An examination of this experience--both the professional development and the conflicts of administrative application--might prove instructive for a wider range of application.

1/ Myrdal, Gunnar, "Appendix, Methodological Note on the Concepts and the Value Premises," An International Economy (New York: Harpers and Brothers, 1956), pp. 336-340. Myrdal has written on this point in several of his writings. This is one of his more recent expressions.

2/ For example, see, Federal Interagency River Basin Committee, Proposed Practices for Economic Analysis of River Basin Projects (Washington, D. C.: May, 1950), p. 85.

Ciriacy-Wantrup, S. V., "Cost Allocation in Relation to Western Water Policies," Journal of Farm Economics, vol. XXXVI, no. 1, February, 1954, pp. 108-129.

Ciriacy-Wantrup, "Benefit-Cost Analysis and Public Resource Development," Journal of Farm Economics, vol. XXXVII, no. 4, November, 1955, pp. 676-689.

For example, it would be interesting to examine the program of exclusive agricultural zoning within this frame of reference. Also, the establishment of building restrictions in a suburban area by a county planning commission may affect the city in terms of both benefits and costs. Can these be identified for purposes of analysis? In addition, the construction of major works such as roads, sewers, water, and electric lines are of fundamental importance in affecting the timing, location, and character of all three areas. And this is not to mention the related problems of financing.

The horizontal interrelationships in any given interval among the various areas is just one aspect of the complexity. These group actions are interrelated through time. Thus, the public investment in a road, the participation in a water development project, or the approval of a subdivision regulation are related purposefully to future actions. The organization which is created to make decisions concerning the servicing of the metropolitan community must be able to reflect the future interests which are developing. This ability to handle the questions of growth is at the heart of this institutional problem.

Let me cite just two problem areas as illustrations: (a) exclusive agricultural zoning and (b) road construction. Time does not permit a full discussion of these topics. (I understand it was the desire of the program planning committee that my paper should be general in character while the others would relate to a specific problem area. Maybe a subsequent speaker will discuss these issues in greater detail.) Both problem areas are receiving much current attention.

What are the benefits and the costs which result from exclusive agricultural zoning? Can the life of the zone be estimated? Aren't we able to

estimate expected income from the zone under assumed conditions of agricultural production? Don't we know costs of urban development of various types? Can't we consider the direction urban development would flow with the existence of the zone? Will the costs of urban development be increased or decreased due to the zone's existence? Can this technique be used to forestall the creation of dead land? Is there an amenity value attached to the existence of agricultural zones? If there is such a value, can means be devised for finding an expression of this value? Where is it most valuable to have open space located in a metropolitan community? These are a few of the questions which should be answered by such a systematic study. By following this procedure, the likelihood that side arguments would obliterate the main issues might be minimized. In actual practice certain of these items are not quantifiable in monetary terms; however, an explicit accounting will go a long way in resolving conflicts as to what is and what is not to be considered.

Investment in roads may also be cited for illustrative purposes. The decision of when, where, and type of road affect the core areas as well as the outlying rural localities. In making the decisions, some responsible agency needs to be able to "think" and speak as a representative of the metropolitan community. Such an agency should be in a position to attempt an economic evaluation of the road network.

Efforts in this direction are progressing. A form of benefit-cost analysis has been officially in use by state departments of highway since Oregon published its 1937 report.[1/] Other states use an adaptation of the procedure on problems

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1/ McCullough, C. B., and John Beakey, The Economics of Highway Planning (Salem, Oregon: September, 1937), p. 471. (Oregon State Highway Commission, Department of Highways, Technical Bulletin No. 7.)

of freeway location[1] and Bevis has applied it to metropolitan freeway networks.[2] These calculations generally restrict the measurement of benefits to the reduction in "user" transportation costs in traveling the new road as compared with a base route.[3]

Attention to this problem has increased with the initiation of the recent Federal Highway Aid program. Research into this problem is progressing along several avenues, and it is hoped that increased consideration will be given to determining the income effects from highway expansion. This information would aid in determining both the rate and the direction of development.

Thus, as an aid in obtaining better metropolitan decision making, it is suggested that studies of this type will assist in determining in which fields metropolitan organization might profitably proceed.

1/ California Department of Public Works, Division of Highways, Planning Manual of Instruction (Sacramento: State Print. Off., March, 1955), part 8, Traffic Section 8-331.1 to 8-337.3.

2/ Bevis, Howard W., "The Application of Benefit-Cost Ratio to an Expressway System," Proceedings, 35th Annual Meeting of the Highway Research Board (Washington: 1956), pp. 63-75.

3/ The base route may be an existing road or a hypothisized shortest route as drawn on a map.